



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>



39.

744.







LECTURES
ON THE
THEORY AND PRACTICE OF MEDICINE.

DELIVERED IN
University College, London.

BY
JOHN ELLIOTSON, M.D. *Cantab.*, F.R.S. &c.
Late Professor of the Theory and Practice of Medicine.

EDITED BY
JOHN CHARLES COOKE, M.D.
*Member of the Royal College of Physicians, London, and of the Royal College of Surgeons,
Edinburgh.*

AND
THORNTON G. THOMPSON, M.D., P., &c. &c.

LONDON:—J. F. MOORE, 9, GOWER STREET NORTH,
Bookseller to University College;

AND SOLD BY
SIMPKIN AND MARSHALL, STATIONERS' HALL COURT.

M.DCCC.XXXIX.

744.



LONDON:—W. BRACE, PRINTER,
52 Britannia Terrace, City Road.

PREFACE.

“ THERE is no British pathologist to whom we are more indebted than to that distinguished physician Dr. ELLIOTSON.”

Dr. FORBES, *Editor of the British and Foreign Medical Review.*

The great excellence of professor ELLIOTSON's lectures, and a wish to enable students and junior practitioners to obtain them in the present form, induced the publisher and editors to print this volume.

The extensive and increasing sale of the several parts as they have appeared, proves that the judgment of the proprietor and editors of the practical value of the lectures, is shared by the profession generally.

The editors have endeavoured to preserve every *practical fact*, and every doctrinal precept, and to omit nothing but recapitulatory and other irrelevant matter.

In the division of the work, it may be stated, that Dr. COOKE is responsible for the greater portion of the lectures on *Cutaneous Diseases*, and for all the lectures from page 527; the remainder of the volume has been under the care of the other editor.

It is anticipated that Dr. ELLIOTSON will never resume his lectures, consequently this volume, containing a vast mass of original

information on numerous diseases, will be invaluable to that profession of which this learned physician is a distinguished ornament.

The proprietor and editors beg to state, that in these lectures the reader will find no allusion to an alledged remedial measure called *mesmerism*; Dr. ELLIOTSON's opinions on this subject are only to be found in his *clinical* remarks.

The errors which unfortunately occurred in the early parts have been carefully corrected, by *reprinting*, with additional matter, the various pages. These may be obtained in the last part.

The Publisher begs to say, that Mr. BRACE is the printer of pages 481 to end, title sheet, and cancels.

9, Gower Street North,
University College.

INDEX.

	PAGE		PAGE
Abscess	46	Bronchocela	450
Ague	145	Treatment of	454
Diagnosis of	164	Bladder, Inflammation of	730
Ague, Leaping	357	Cystitis	<i>ib.</i>
Treatment of	359	Bladder, Morbid Anatomy of	731
Air-passages, Hæmorrhage from	506	General Morbid Anatomy of	<i>ib.</i>
Treatment of	511	Treatment of	732
Amaurosis	410	Cancer	118
Anæmia	127	Carditis	589
Anæsthesia	412	Catalepsy	378
Treatment of	413	Catarrhus	476
Morbid Appearances	414	Treatment of	478
Angina Pectoris	600	Senilis	488
Aorta, Aneurism of	603	Æstivus	516
Treatment of	605	Treatment of	523
Aphonia	472	Chlorosis	128
Aphthæ	463	Cholera, English	667
Treatment of	464	Treatment of	668
Apoplexy	381	Epidemic	669
Morbid Appearances	385	Chorea	353
Treatment of	394	Treatment of	356
Ascites	609	Cirrosis	126
Treatment of	610	Colic	648
Asthma	513	Symptoms of	649
Diagnosis of	515	Morbid Appearances of	<i>ib.</i>
Prognosis of	<i>ib.</i>	Treatment of	<i>ib.</i>
Causes of	525	Contagion	190
Treatment of	526	Cough, Spasmodic	531
Atrophy	107	Nervous	<i>ib.</i>
Ascaris Lumbricoides	691	Cutaneous Diseases	224
		Concluding Address	744
Boils	279	Delirium Tremens	324
Treatment of	284	Treatment of	325
Bronchial Tubes	489	Diagnosis	12
Dilatation of	<i>ib.</i>	Diarrhoea	659
Auscultatory Signs of	490	Causes of	660
Bronchitis	479	Treatment of	661
Auscultatory Signs of	481	Diathesis	14
Treatment of	483	Dropsy, Inflammatory	95
Asthenic	484	Treatment of	98
Treatment of	<i>ib.</i>	Prognosis of	101
Chronic	485	Ovarian	612
Treatment of	495		

	PAGE		PAGE
Dysentery	653	Hæmorrhage	87
Treatment of	656	Head and Nervous System, Dis-	
Disorders of the Digestive Organs	675	eases of	296
Dyspepsia	684	Headache	305
Treatment—Dietetics	685	Heart, Hypertrophy of	689
Diseases of the Intestines	688	Dilatation of	591
Worms	689	Auscultatory Signs of Dis-	
Diseases of the Urinary Organs	697	eased	593
Diabetes	705	Treatment of Hypertrophy	
Treatment of	709	of	595
Diseases of the Prostate	732	Treatment of Dilatation of	596
Ecthyma	261	Aneurism of	597
Eczema	254	Induration of	598
Rubrum	ib.	Softening of	ib.
Impetiginodes	255	Rupture of	599
Treatment of	257	Gangrene of	600
Elephantiasis	292	Ossification of	ib.
Enteritis, Acute	646	Hemiplegia	401
Treatment of	647	Morbid Appearances	403
Erysipelas	244	Hepatitis, Acute	617
Erythema	231	Chronic	620
Exanthemata	230	Herpes	253
Eyes, Examination of	16	Hooping-cough	527
Epidemic Cholera	673	Treatment of	529
Fatality of	674	Hydrocephalus, Acutus	310
Entozoa	690	Treatment of	314
Entozoa—Ectozoa	693	Spurious	316
Treatment of	694	Chronic	318
Excess of Urea in the Urine	711	Treatment of	321
Face, Examination of	15	Hydrophobia	335
Fat, Discharge of from the Ali-		Treatment of	345
mentary and Urinary Organs	663	Hydro-pneumato-Thorax	564
Fever	135	Hydrothorax	561
Continued	174	Hypertrophy	105
Morbid Appearances	183	Hysteria	373
Diagnosis of	186	Treatment of	375
Prognosis of	187	Hæmaturia	699
Treatment of	209	Diagnosis of	ib.
Remittent	218	Treatment of	700
Treatment of	223	Jaundice	623
Fluxes, Treatment of	93	Ichthyosis	293
Formations, New	113	Idiosyncrasy	9
Fungus Hæmatodes	120	Idiotcy	419
Treatment of	120	Treatment of	424
Gall-stones	628	Impetigo	259
Gastritis	637	Induration	102
Causes of	638	Treatment of	103
Treatment of	639	Inflammation	27
Chronic	640	Diagnosis of	34
Gastro-intestinal Concretions	665	Common	36
Glanders	285	Symptoms of	38
Granulation	47	Buffiness of the blood in	39
Gout	733	Coagulation of the blood in	40
Prognosis of	735	Terminations of	43
Treatment of	736	Resolution of	ib.
Hæmatemesis	645	Effusion as an Effect of	44
		Varieties of	52

	PAGE		PAGE
Inflammation of Cellular Membrane	55	Paraplegia	406
Of the Viscera	<i>ib.</i>	Treatment of	408
Explanation of Symptoms	67	Parotitis	457
Treatment of Acute and		Pericarditis, Acute	569
Chronic, Termina-		Morbid Appearances in	571
tions of	83	Chronic	572
Influenza	479	Peripneumonia	497
Insanity	425	Morbid Appearances in	499
Diagnosis of	443	Treatment of	503
Prognosis of	444	Peritonitis Acute	605
Treatment of	445	Chronic	607
Moral Treatment of	448	Pharyngitis	465
Intellect, Affections of	416	Phrenitis	308
Intermittents	165	Phthisis Pulmonalis	531
Intestines Ulceration of	635	Auscultatory Signs of	538
Intus-susception	652	Predisposing Causes to	543
Indigestion	676	Treatment of	546
Symptoms of	677	Plague	280
Intestinal Symptoms of	679	Treatment of	283
Treatment of	681	Pleura, Tubercular Disease of	508
Kidney (mottled)	701	Pleuritis, Acute	552
Atrophy of	702	Chronic	555
Functional Diseases of	703	Pneumato-Thorax	563
Laryngitis Acute	466	Pneumo Thorax	542
Treatment of	468	Pointing	46
Chronic	470	Pompholyx	257
Treatment of	471	Porriago	263
Lepra	249	Prurigo	229
Lichen	227	Pulse, Examination of	18
Lungs Gangrene of	504	Purpura	290
Lithiasis	727	Treatment of	291
Symptoms of	728	Quinine, Use of	217
Melanosis	122	Roseola	231
Melœna	125	Rubeola	235
Miliaria	251	Sine Catarrho	237
Morbilli	235	Rupia	262
Mortification	49, 60	Rheumatism	737
Mucus, Chemical Tests of	48	Treatment of	739
Neuralgia	347	Scarlatina	238
Treatment of	350	Treatment of	242
Rheumatic, Treatment		Scirrhus	117
of	351	Scurvy	130
Nyctalopia	411	Sight, Touch, Observations by	20
Nephritis	698	Softening	103
Treatment	<i>ib.</i>	Spina Bifida	322
Organic Changes	108	Spleen, affections of	615
Œsophagus, Stricture of	465	Squamæ	248
Œgophanism	553	Stomach, Natural Appearances of	631
Pain	32	Morbid Appearances of	632
Papule	226	Hypertrophy of	633
Paralysis agitans	351	Softening of Mucous	
Treatment of	353	Membrane of	634
Paralysis	398	Ulceration of	641
		Rupture of	<i>ib.</i>
		Stricture in the Œsophagus	465
		Suppuration	45
		Diffused	47

	PAGE		PAGE
Swelling	31	Trichoma	295
Sycosis	279	Tubercles	115
Stillicidium Urinæ	732	Tympanitis	614
Terms, Explanation of	1	Tænia	692
Tetanus	327	Urticaria	232
Morbid Appearances of	329	Urine (Serous)	712
Diagnosis of	331	Urinary Sediments	713
Prognosis of	<i>ib.</i>	Urinary Calculi	717
Treatment of	332	Treatment of	722
Therapeia	24	Diagnosis of	724
Tongue, Examination of	16	Causes of	726
Tonsilitis	458	Vaccina	274
Treatment of	461	Varicella	277
With Ulceration	<i>ib.</i>	Valves, Diseases of	575
Treatment of	462	Auscultatory Signs	579
Touch, Examination by	20	Rupture of	599
Tracheitis	472	Variola	266
Treatment of	474	Treatment of	273
Spasmodic	475	Worms	689
Treatment of	<i>ib.</i>		
Trance	380		

LECTURES

ON THE

THEORY AND PRACTICE OF MEDICINE.

LECTURE I.

EXPLANATION OF TERMS.

GENTLEMEN,

THE great cause of disease in the human frame is alterations in external temperature. The alternation of heat and cold to the body produces the most serious effects; more especially if the exposure be partial. The greater number of diseases are of an inflammatory nature, caused by unfavourable temperature. Pernicious air is a common cause of disease; not because there is any want of oxygen, but from the presence of substances of a quality highly deleterious. There is about the same quantity of oxygen in the air of all countries, and of all situations. The effect of bad air in unhealthy districts is plainly perceptible in the inhabitants, who generally appear sallow and bloated. Unwholesome food renders the frame feeble, and predisposes to disease. Excessive action, and the deprivation of the necessary rest, have the same tendency. Mechanical violence in consequence of injurious agents—errors respecting the agents absolutely necessary to support existence—error in excess, an improper quantity, or depravity of quality, will constantly produce disease; and when induced, it but too frequently becomes hereditary, so that the offspring requires no other cause than the congenital predisposition to produce that which was induced in the parent by injurious circumstances. There is an inherent disposition to disease—an original malformation of certain parts of the body, which so disorder its functions, that eventually disease occurs, which will frequently terminate in death. When the functions are deranged, a variety of actions take place in the body, and then what is termed disease occurs. The circulation of the blood becomes unequal and altered; the temperature of the body varies, from hot to cold; the feelings are either too acute or too dull, or they are altogether wrong. There is sometimes an increase of the strength of the body, but more frequently it becomes diminished and impaired; and what is performed naturally in the body, prior to these changes occurring, is depraved. The perspiration is unnatural in quality and in degree. The urine is also changed in quality, the secretions discharged from the intestines are altered, and the excretions from the bronchial tubes, in my opinion, are altered in their properties. The structure of the body becomes affected, the actions altered—and both the products excreted from the body, and the whole body itself will

become changed. These changes must exist in a certain intensity, in order that we may form a just opinion that disease is present. A change may be denominated a disease, yet it might be slight; and we should excite ridicule, if we called it disease. As, for example, a flea-bite, a spot, the size of a pin's head, on the surface, we could not call disease; but if a number of these were exhibited, the nature and degree of each being the same, then we should not hesitate, but call it disease. All deviations from function or structure, to a certain extent and intensity, will justify us in declaring it disease; which, correctly speaking, is "an aberration of function or structure of one or more organs from a sound state." This definition is scarcely satisfactory, for a part may be sound, even with respect to function, and yet be diseased. A portion may increase to a size beyond the natural proportions,—there may be diseased bulk of the organ,—yet the structure may be healthy. Sometimes, where there is increased bulk, there is diseased structure; but it may be very large without being changed, and the person by some would be pronounced labouring under disease. An enormous liver or brain, without indications of unhealthy structure, would be denominated disease.

Fluids alter very much, and yet there may be no fault of function. In "anæmia," the blood is wanting in quantity, and the disease is independent of any fault of the body. Want of food may cause blood to be of diseased quality, without its natural elements, and watery, pale, and thin; the body becomes white and tallowy, and yet no function will be diseased, excepting through this. If proper food is given, the body will perform all that is required of it. Thus, then, this definition of disease is more or less objectionable. In a vast number of diseases the quality of the fluids changes, and you should take this into consideration, because it is highly necessary. The constitution of persons should be taken into account, when giving an opinion relative to disease, for what is health to one man may be disease in another. Dr. Gregory's definition is, "a disease is present, when the customary actions of the body are either altogether impeded, or performed with difficulty and pain." Disease may be generally defined "an aberration of function, or structure, or size of one or more organs, or of the quality of the fluids, from the sound state rendering assistance necessary."

This is but a definition of disease in general, Thus, you will at once perceive, that disease is but changes in the physiology and anatomy of the body—being *morbid* physiology, and *morbid* anatomy, which states taken together, are denominated *pathology*. The doctrine of diseases, whether regarding function or composition, is denominated "pathology;" which term by some is limited to morbid anatomy, but this is erroneous. Pathology is an unhealthy state of physiology and of anatomy: the composition of the fluids being comprehended under the term physiology as well as function—size being comprehended under the term anatomy as well as structure. Some diseases are first functional, but subsequently became structural; and one will frequently terminate in the other. Many organic diseases are produced by some change of functional disturbance, yet minute changes of structure will exist for some time previous to their being

discovered. Numerous affections will remain functional, being merely disturbance of function without affecting the structure; and structural diseases frequently disturb the functions. For an organ to perform its functions properly, it is apparent it should not be greatly changed from a healthy condition.

The terms structural and organic are frequently used to express the same meaning, and are used to denote diseases which alter the composition and arrangement of organs, not merely a change in the way in which they perform their several duties. I prefer the term *organic* to the term *structural*; because some diseases of this description do not denote any change of structure, only a lessening or increase of bulk; such diseases are rare, but they do sometimes appear. These affections waste the organ, or it is larger than when natural, and yet healthy in appearance; thus the term organic is more definite when applied to such diseases. Some attempts have been made to denominate one class of diseases presumed to be functional as "disorders," and those which are structural or organic, as "disease;" that is, to denominate dyspepsia and diabetes *disorder*—ulceration or cancer of the stomach—ulceration of the kidneys *disease*. These distinctions would be all very well if every one used them in this sense; this, however, is not done, for many authors use the term organic, which would be unnecessary if all used the term disease to denote a structural affection. CULLEN applies the term *disease* to accidents, such as "dislocations," "fractures;" and he places them under the class of "local diseases," while others apply it to hernia, and to affections of the functions and structure. I will use the term not to organic affections exclusively, but to *all* depraved conditions of the organs and functions. There are *local* and *general* diseases.—fever, for instance, is supposed to be a general affection: many assert that there is no disease which can be denominated general, but that fever is an inflammatory affection of one part or other of the body. This is the doctrine of BROUSSAIS. I believe that there are general diseases; for example, every fluid of the body appears vitiated in *scurvy*, the whole blood as well as solids is corrupted, and no one part of the body in particular can be distinguished as being the exclusive seat of the disease. Again in *ague*, you cannot fix on any one part as the seat of disease, therefore I conceive these facts as proofs that there are "general diseases." Many affections commence suddenly, last but a short period, and terminate either in health or death,—"*cita mors venit aut victoria læta*," and are called *acute*. Some continue a length of time, and may have advanced slowly, but it is of no importance whether they have progressed fast or slow. If they continue for a long period, we call them *chronic*. Sometimes diseases of an acute nature, if they are not terminated by health or death, will become chronic, being less violent; and they will progress onward to a long period. The period which diseases last will determine whether they be acute or chronic.

There are the terms active and passive diseases, which many use as synonymously with acute and chronic: these terms I must caution you against. A disease may be acute, or existing but for a short period, and then end; but it may not have violent symptoms, nor does

the period it has lasted indicate active symptoms. In rheumatism the terms acute, chronic, active, and passive, are continually being used indifferently; acute with active, and chronic with passive; but who would use the same remedies in a chronic affection as in an acute attack, supposing, as the disease is chronic, there is no violence, but that the disease is progressing, and the remedies for the active acute state are improper? Thus disease may linger even beyond a year, with every symptom of an acute affection; and [if the pulse be not rapid, the parts will be much heated; and the blood, if drawn away, will be buffed. You must not, therefore, suppose the terms active and passive similar to acute and chronic, which would be very erroneous. A short duration of disease is called *acute*—long duration, *chronic*—violent disturbance of the system or part, *active*—slow changes, *passive*; but a chronic disease may be active, an acute affection passive. In acute affections, all the powers may be lost, and the functions will be languid; acute and chronic are then entirely dissimilar to active and passive. Thus an acute affection can never be chronic; but it may be passive: the chronic cannot be acute, but sometimes active. There is a difference in the uniformity of the duration of disease; some will scarcely deviate from their commencement to their termination: these we denominate “continued;” while there are, in some, remissions at regular periods; these are “remittent.” In these affections the symptoms continue until the disease terminates, with a relaxation from severity at such periods; thus their character is acquired.

Some diseases will cease and recur at irregular intervals; these are *intermittent*, as seen in fever, which may be uniform in its progress, not ending nor diminishing in twenty-four hours until its close; this is *continued* fever. This may continue for days or weeks. Some fevers are distinguished by loss of heat, of very rapid pulse, of thirst, and other symptoms, at one period in twenty-four hours or longer, without terminating: this is the characteristic of *remittent* fever; while other fevers are denoted by an attack at a certain time, indisposition a certain number of hours, then the individual will be quite well, excepting a little languor: this is *intermittent*. Thus diseases differ according as they affect function or structure—as they are local or general—as they are acute or chronic—active or passive—remittent or intermittent. They differ too in their true inherent nature very much, and entirely independent of other circumstances; and they also differ as to their causes. For example, certain exhalations will produce ague, small-pox, and every disease, which acknowledges certain specific poisons for causes. While some diseases affect nearly every organ of the body, there are others which differ according to the organ they attack. All those portions of the body which have vessels, inflammation will affect, while other diseases are entirely confined to particular organs; *diabetes*, as far as experience guides us, affects the kidney only, and the tendency to produce gall-stones, affects only the biliary system.

Authors divide the causes of diseases into two, the “remote” and “proximate,” those are again divided into two others, “predisposing” and “exciting.” In speaking of remote causes, we mean quite a different thing from proximate causes; for the cause of disease is *always* remote. Depressing passions, and bad nutriment may be

the remote cause of fever, and the exciting cause some specific contagion. Remote causes, of the first description, are denominated "predisposing," because the frame is liable to something which excites disease. If there is no predisposition to disease, the exciting cause would not affect the body; and had not the exciting cause occurred, the predisposition might not have had the effect. Therefore, a circumstance inclining the frame to disease, is the predisposing cause—"causa prædisponens," and that which actually excites disease, exciting—"causa excitans," or both together are denominated "causa remotæ," because they are a little distance from disease itself, while the proximate is near, and, in one sense, is the self same disease.

These terms cause much confusion, because you would suppose disease to be what it is called: and to call disease the proximate cause, is, it seems, absurd. In defining disease, we are compelled to give a definition to what we perceive, taking what is the object of sense, and describing it with all the marks together, and that is denominated the definition of disease. In jaundice, we perceive a yellowness of the skin, of the eyes and nails, whiteness of the fæces, high colour of urine; and we say the individual has jaundice; and with these symptoms, although we cannot denominate jaundice a disease, yet we say the person is labouring under jaundice. Hence the term disease is not applied to the single cause of these symptoms, but to a collection of them. If, in epilepsy, a person drops down, foams at the mouth, and struggles in every limb, subsequently, when he ceases to foam and struggle, he lies senseless. These symptoms occurring in succession, constitute "epilepsy." By CULLEN and by other nosologists, disease is defined according to mere symptoms; all opinion, all cause is excluded, you perceive merely the symptoms; you denominate them disease, and you are right, for there must be a cause for all disease. There must be a cause for epilepsy—for bile entering the blood in jaundice, for its presence in the urine, and for the impossibility of its entering the fæces. The cause of epilepsy—of jaundice, is the circumstance which produces all these effects, and is called the "*proximate*" cause. If epilepsy was caused by a piece of depressed bone on the brain, we should say that the proximate cause was the bone; and if the flow of the bile were obstructed by calculus impacted in the hepatic duct, then you would say impaction of calculus was the proximate cause of jaundice.

The remote causes, therefore, are those which predispose to disease, or actually excite it, while the proximate cause is the circumstance to which the predisposing and exciting have given rise. The term *disease*, when applied to any specific effects, is in a nosological sense applied merely to a set of symptoms, which we call the proximate cause. But when speaking, as pathologists, we then inquire what is the actual disease in epilepsy and jaundice—is it enlarged pancreas pressing on the side of the ducts? Is it calculus attached there, or what is the disease? Therefore, remember that the term disease is applied by nosologists to a collection of all the symptoms, and not to the true cause which is at the bottom of all those symptoms.

LECTURE II.

EXPLANATION OF TERMS.

THE learned professor, after having recapitulated a portion of his first lecture, proceeded to observe :—

The whole doctrine of disease together is denominated *general pathology*, which is the science of disease—the “*ægroti hominis scientia* ;” while physiology is the science of man when healthy. General pathology embraces four particulars—general “*nosology*,” or an account of diseases in general, and their chief differences—“*semeiology*,” or “*symptomatology*,” or an account of the symptoms of disease—“*œtiology*,” or the causes of disease—and lastly, “*therapeia*,” or the treatment of disease. Local diseases seldom continue any length of time without causing more or less general effects. Some contend that all diseases are local. Some are not—such as scurvy ; they may affect different textures or particular tissues ; and their symptoms and their course are influenced greatly by the texture thus affected. The symptoms are very different in inflammation of a serous membrane, and of a mucous membrane, or when it affects the skin or bone. Disease will affect particular organs as well as textures in a particular organ, or all the textures together ; and should it do so, much depends on the importance of the organ affected to the economy in health, and the several relations of that organ greatly influence the symptoms. The symptoms or inflammation may be of little moment if seated in the finger, but serious if in the stomach ; and a disease of the brain or heart will produce different results from one seated in other parts. The characteristic of many diseases is, inordinate violent action of the part, which occurs much more in disease than in health, at least for some time, until the strength is exhausted or it subsides into health. Some are marked by diminution of action, the natural functions declining, and thus depressing the character of the affection. If the part be marked by feeling, such as the surface of the frame, the feeling may become intense ; if it be one whose function is motion, the motion may be intense, and it is attended frequently with convulsions. On the contrary, you may have a diminution of feeling, with torpor, insensibility, absence of all power or motion, and the part becomes useless. If the part secretes, then the secretion may be excessive, and if it does not escape then dropsy is the result. If the secretion be diminished, urine cannot form in the kidneys, and there will be dryness of the skin. There will be in some diseases great dilatation of the part, sometimes much beyond its natural boundary, and in other diseases there is contraction and diminution in the parts,—they become hard, although they have been naturally soft, and they will be as firm as cartilage or bone ; sometimes very solid parts will sometimes be perfectly soft, and bone may be as pliable as muscle. I have seen the liver softened like pulp in three days. Diseased parts will distend with fluid, which may be either local or general ; it may be local congestion or universal plethora of the body. On

the other hand, the parts may contain no fluid which causes them to shrink. Changes in the texture of organs occur also, as well as alterations in the quality of the fluids. The texture, not to mention induration, softening, hypertrophy or atrophy, becomes different than when in health, so are fluids different in character. Sometimes the urine is far from genuine, and the bile so pale as not to be recognized. The blood is frequently only reddish and watery. These are important and essential differences in disease. Some diseases are hereditary, but this does not influence the nature of their course or duration,—some diseases are hereditary in some persons, while in others they are not, although born with the person. Such diseases are called “connate,” or “congenital,” and these may be transmissible. When diseases are not hereditary, nor connate, nor congenital, they are said to be “acquired.” Accidental diseases are sometimes primary or secondary,—sometimes a first disease is joined by another, or the first predisposes to the second; but it is of little importance to the nature of a disease whether it is primary or secondary. “*Sporadic*” diseases are produced by accidental circumstances, such as cold, which induces inflammation of the lungs or intestines. Disease occurring amongst a community generally, and from some temporary cause is called *epidemic*. Thus there is therefore a complete contrast between “*sporadic*” and “*epidemic affections*.” If diseases spring in a place, from causes fixed and inherent to that situation, and those causes affect strangers, then this is called “*endemic*,” as contradistinguished from epidemic diseases, the former being confined to particular situations, and the latter arising from general causes. Some diseases arise from specific contagion, while others do not. From the variations in the nature of diseases said to be contagious, much doubt exists as to whether they are contagious or not. There are diseases which occur at different periods of the year, in summer, winter, and autumn,—“*vernales, æstivi, autumnales, hyemales*.” Other accidental differences of disease arise from their seat: whether they are internal or external, fixed or wandering—ceasing in one spot and appearing in another;—thus constituting the “*metastatic*,”—“*retrograde*,” or “*retrocedent*” character. Some diseases are very severe, some light, some mild, others malignant. Malignant diseases, however mild in appearance, are sure to baffle medical art, and are only removed by operations. Sometimes the term malignant is used to mark a degree of severity; for instance, small-pox is frequently called malignant, so is typhus, and slight sores of a cancerous nature are denominated malignant, for they are sure to proceed to ulceration, with violent pain, and at length destroy the part affected. If diseases terminate within four days, they are denominated by Latin authors “*acutissimi*,” and in seven “*peracuti*”—we have in English no words to designate these periods and terminations of disease. Diseases terminating in fourteen days are “*acute*,” in from fourteen to twenty “*sub-acute*.” Some are so precise as to use the term “*acuti decidui*,” if the disease lasts forty days, and above that time, they call it “*chronic*.”

A periodical affection is necessarily intermittent, but an intermittent disease is not necessarily periodical, for the word “*intermittent*” em-

braces regular intermissions, and when it occurs thus, it is denominated a "paroxysm," or "exacerbation;" the interval which occurs between them is the intermission, or in the case of febrile disease the period of "apyrexia"—the period the absence of pyrexia.

The terms predisposing and existing are denominated by some, generally by foreign writers, "occasional," or "procatartic." A child is predisposed to one affection, the youth and adult to another, and the old to diseases very dissimilar to those of the child, youth, and the adult. Climate,—time of the year,—habit,—temperance,—natural or artificial mode of living, cause a predisposition to many diseases. Most persons take small-pox, measles, and chincough; but we cannot confidently say there is a predisposition, for rare indeed is the case in which they do not occur. Therefore we are justified in stating that when these affections are not induced in spite of the presence of contagion, the individuals are indisposed to them, and those who catch them are predisposed; thus they may not be predisposed, yet there may be no indisposition to be affected.

Excess of wine and an increase of heat are *stimulating* causes of diseases—depressing passions and great loss of blood are *debilitating* causes. Italian authors denominate this latter cause "contra-stimulating." There are many causes of disease of which we are utterly ignorant, for instance, malaria exhibits symptoms of a very peculiar nature, and we are unable to assert whether it is a mere depressive or contra-stimulating agent. Ague, which is accompanied by great debility, is thus first induced; yet if we weaken the frame by depletion, or by other means, we do not produce intermittent fever. Thus we have stimulating, depressing, physical, or chemical causes, which some say are "stimulantes"—"contra-stimulantes,"—and "irritantes." You should not be fastidious, either in medicine or anatomy, in using certain terms; never care about their entymology, but use terms by which you can convey your exact meaning. Malaria excites ague, but a person exposed to it may not have ague unless he gets wet, this excites it;—the malaria being the predisposing cause. Disease will occur without an exciting cause, if a predisposition continues. Apoplexy has been induced by an increasing plethora of the head, although there has not been an exciting cause, such as stooping, or too much food, which has overloaded the stomach.

An aberration with respect to six peculiar circumstances which have been denominated "non naturals," is a common cause of disease. The air we inhale—food—drink—the retentions and excretions—motion—rest—sleep—watching and the many passions of the mind, although natural, are, by old authors, denominated by this strange term, while others have called them "things necessary to life." An aberration from these is the great cause of disease. With regard to *air*,—vitiation of course produces fevers and numerous diseases. But food and drink in improper quantities will induce a departure from health. It is true that the human frame can bear immense labour, and the mind much mental exertion; but many affections arise from an abuse of these physical and mental powers as well as from indolence and inactivity, which induce a collection of

various fluids in parts of the body, which causes stagnation, plethora, fatal dropsy, with various organic diseases. For want of the necessary rest and sleep, many are attacked with fevers, and the most destructive affections. Excepting contagious diseases, the passions produce almost every other affection of the whole human economy. I mean grief,—regret,—chagrin,—violent anger, and deep-seated sorrow; and injurious effects are also induced by an excessive elevation of the animal spirits,—agreeable feelings, for instance, or great joy.

LECTURE III.

IDIOSYNCRASY—SYMPTOMATOLOGY—DIAGNOSIS—PROGNOSIS.

AIR, by its weight and electrical qualities—by its temperature, its dryness and moisture, may injure the frame. Various winds have effects on the human system of the most peculiar nature, which effects vary in different countries and localities. Temperature, by its elevation or lowness, and by its vicissitudes, applied to the frame partially or generally, has an injurious effect. Thus, variations in the temperature from cold to heat—draughts to particular parts, and offensive effluvia being transmitted through the air, produce many painful affections. Old writers have made some fanciful distinctions on the subject of plethora,—they denominate it “absolute or true,” “ad vires,” or “ad vasa;” if there was really an excess of the blood they called it “apparens,” the blood being in its natural quantity, and expanded by heat, would cause “temporary plethora.” A third variety was called “relative.” If there was neither an increase in the blood, nor an improper expansion by heat, and the vessels became too small for the fluid, they denominated it “relative plethora,” or “plethora ad spatium.” Local plethora is now denominated inflammation or congestion. If the blood be in excess in the vessels, it is too rich, being almost devoid of its watery portions; with too much of the crassamentum. The opposite of plethora is “inanition,” caused by excessive discharges, or want of food; thus the blood is let out, and the excretions are not replaced. But “anæmia,” or bloodlessness, may arise from a peculiar and not understood state of the system; where rough food is taken, but nourishment is not derived from it. We continually perceive cases of this kind, “chlorosis,” for example, is one. The blood certainly is wrong in its constituent parts by saline ingredients erring in quantity, so that in many diseases it is quite deficient in saline particles. However, diseases of the solids will frequently cause those aberrations of blood, therefore the blood is not the cause of the disease, but it may cause farther disease, although the solids gave rise to the aberration of the vital fluid. Excessive discharges of the excreta may.

cause many diseases, and they may consist of blood, bile, of secretion from the alimentary canal, fæces, urine, perspiration, saliva, (that, however, does not injure much) and of semen. But with respect to the latter discharge, though simple excessive loss must be injurious, yet it is certain that the mode by which the fluid is lost, exerts great influence on the constitution. I need scarcely mention the ill effects of sluggishness and fatigue, and of the passions of the mind; besides these, the body is liable to be injured by two very common sources—poison which may enter the system by the surface, by breathing through the lungs, or by being swallowed. The manner, however, in which the poison is taken into the system, exerts a great difference in its effects; for the poison of hydrophobia, and of the serpent may be taken without injury to any part of the body. Mechanical injury may cause to any part of the body much suffering.

Ague gives a predisposition to disease. You rarely perceive gout in an infant, and old people scarcely ever have acute hydrocephalus. All ages appear liable to peculiar affections, which either destroy or impair life. Both sexes are liable to particular diseases; hysteria sometimes occurs in the male, but much more frequently in the female, especially when there is any uterine disturbance. Certainly there are diseases which are confined to each sex. There are four divisions of temperament,—the “sanguineous,” which is characterized by a smooth skin, soft hair, quick pulse, warm surface, great excitability of frame, and generally fair skin, with florid complexion and disposition to fulness in exercise, “Melancholic,”—by slow pulse, dark swarthy complexion, dark strong hair, less susceptibility of emotion, but more permanent when excited. “Phlegmatic” —by torpidity, paleness, and flabbiness. “Choleric,” reddish hair, with great excitability. These divisions are less attended to now, but we often see the temperaments blended together. Lately, attempts have been made to divide temperaments with regard to the activity of certain organs. The “cerebral” where there is large intellectual development of the head; “thoracic” or “muscular” where there is broad chest, and considerable development of all the muscles. Others are sluggish, prone to large bellies, eating, and drunkenness; those have the “abdominal” temperament. But it is wrong to call these temperaments, for I believe the word refers to the constitution and character of the whole frame; but these divisions are evident, for some beings are all intellect, some all muscle and chest, some with portly big bellies and lean pates. It is certain that all these temperaments are liable to diseases of the head, if they be of cerebral conformation—inflammation of the chest, if they possess full thorax,—and various hepatic and other diseases of an abdominal character, if large bellies have the sway. I think you may as well attend to these distinctions. But beside original constitutions, long residence in a peculiar climate will engender a second nature; various occupations in life do the same. I refer you to the admirable works of THACRAH and RAMMAZINI; you cannot read better works on these subjects. Custom or habit referable to trade or action may have considerable effect in preventing and

curing disease. For in dram drinkers we often perceive the diseases, of whatever nature they may be, will not give way if they continue their potations, and many have sunk after an operation by their dram being withheld from them, and a good portion of gin has restored many, and made all go on well, though they had been previously sinking. Pernicious habits should therefore be indulged under peculiar circumstances, but it were much better had they never been formed.

But an individual may have a particular disposition; it may be born with him, and even be hereditary,—a peculiarity so very singular and different from any other, that it is denominated “idiosyncrasy,” a peculiarity either entirely original or acquired by habit; sometimes connate and sometimes hereditary. You will see some who cannot eat certain food. I have seen a young woman digest the hardest salt meat, but she was thrown into spasms of the stomach if she partook of fruit of any kind. It is therefore important to understand these idiosyncracies; you will then know how to treat the peculiar features of each.

PARTICULARS OF PATHOLOGY.

Symptoms are every thing which are observed in a patient who is unhealthy—“*singulæ quo in ægro præter naturam observanturres.*” The most apparent and the most constant of these joined together constitute the disease. Symptoms may be essential, pathognomonic, or accidental; essential symptoms are those necessary to make the disease,—to constitute the idea of disease: for example, in pleurisy there will be sharp pain in the side, increased respiration and feverishness, with cough; without these symptoms, you would not suppose pleurisy present; collectively, these are the disease,—the essential symptoms,—but no one of them would be pleurisy, for there might be feverishness, pain in the side, increased respiration without pleurisy,—because the sharp pain might be muscular or neuralgic, and also the cough without pleurisy. If a symptom be so important to the disease that this cannot be without it, it is denominated pathognomonic: a pathognomonic symptom is one which is so important that you cannot conceive disease without it: for instance, the symptoms in jaundice,—yellow skin of the sclerotica and of the nails are pathognomonic: generally, we take into our consideration the *whole* of the symptoms in making out the disease. Some cases have symptoms which are purely *accidental*, and not necessary to the diseases, because they sometimes exist without them. There are also *positive* and *negative* symptoms; negative is important, but the term is improper, for a symptom must be positive from the absence of certain circumstances by which you ascertain the nature of the disease. If there be two diseases with certain symptoms corresponding with each other, and one with an additional symptom which the other has not, then by the absence of that symptom we distinguish the diseases, so that the absence as well as the presence of symptoms is highly important.

DIAGNOSIS.

Is a determination of the character, name and nature of the disease. There are certain circumstances which materially aid and confirm diagnosis. In jaundice yellow skin and sclerótica are diagnostic, from which we state that the disease is jaundice. But sometimes a diagnosis is not made from symptoms alone—we must examine the exciting and predisposing causes, to what the patient has been exposed, and then judge the result by what had occurred; this will assist your diagnosis. You should also inform yourself of the character of the affection, and learn the effects of any prior treatment. If active treatment has been adopted without effect you may doubt the propriety of it, and also the previous diagnosis of the disease. It is in making a correct diagnosis that the medical practitioner shows a knowledge of his profession, and he will be regarded with proportionate respect; his labours will be crowned by success, and he will outshine his inferiors. Many men say, without knowing what is the matter, when attending a case, what will do good; this is unscientific, and very like an individual who will not learn the anatomy of hernia, but who, after cutting this way and that way, says he shall liberate the entangled portions, and perform the operation as well as the most scientific. I have witnessed the perplexity and difficulty of such men, and they have been happy to apply to the scientific practitioner who knew better. You cannot be too minute in your diagnosis of the general character of the disease, and especially to distinguish of what variety the affection is—whether one of strength or weakness, which will require patience. Your judgment when formed of what is to happen is called “prognosis.” To make this correctly and accurately, diagnosis is necessary, for if you are ignorant of an affection, you will not be able to say how it may terminate; you must therefore observe the symptoms and learn the history exactly, as in diagnosis, and you must ascertain the direct tendency of disease—the course which it is inclined to run in the person. Take into consideration the sex, age, and previous habits of the patient, and put into practice the proper curative means. Less skill is required in making a prognosis than a diagnosis, for many people by a tact, without knowing what is the matter, can give a correct prognosis, favourable or unfavourable. This is done repeatedly by persons having no knowledge of medicine: for example, officers in battle when seeing men fall around them, or sick in hospitals, have given shrewd and correct guesses. It is only by making it a rule to investigate every case which comes before you, so as to form a correct prognosis (whether you cure your patient or not), that those who follow us in our career may profit by it:—if we do not endeavour to advance science, we shall not have the pleasing satisfaction of knowing that a new generation will be benefitted.

The symptoms of disease on which diagnosis and prognosis may be grounded are divided into two kinds,—those which we ascertain from the patient, and those which we learn from the attendants and


friends. For instance, the patient only can inform us of his feelings, for he feels the pain, and not the practitioner. We take the patient's account, and in public practice we are but too often deceived. Pain is of various kinds,—sharp, darting, shooting, lancinating, are the terms which patients use. Sometimes the pain is dull, which is denominated "ache," and they add "pain," which is "aching-pain;" again, they say throbbing, pulsating, and pricking pain. By attending to these things you will find the seat of the affection. If a patient describe his pain as sharp, dull, and throbbing or pricking, you will see whether he is speaking truth. For if he have pain at all, you will judge whether he describes the pain which you expected. Sometimes you will hear the terms "smarting, broiling pain," in affections of the abdomen. If pain is increased by stimulants or pressure, it is called "tenderness," which term might with greater propriety be applied to mechanical pressure. Patients describe feelings of dead weight, fullness, as if the parts of the head would burst, this is denominated "tension," which appears a high degree of fullness. They also complain of pricking pain, similar to that experienced by a blunt pin, but this is unlike that which some complain of an inflammation of the urethra in gonorrhœa, which is a pricking sensation in the urethra. The feet and hands being asleep is not denominated pain, but they assert they have pins and needles there. Many persons have sensations which drive them nearly delirious, and they deny it is pain. I saw a lady who was compelled to walk about her room with a servant rubbing her neck night and day and if she did not resort to this her senses were bewildered, and she exhibited the utmost distress. There is also other sensations—creeping—crawling, or a feeling similar to water trickling down them; again, itching and tingling approach pain, and frequently are insupportable. A high degree of tingling is what is termed itching, joined with a sense of pricking. In some sensations, nausea is experienced in the stomach, and sometimes there is great sensibility in one particular organ or sense. These sensations have been experienced by many of us, and we must take the patient's word, and we can only ascertain by other symptoms whether the patient is stating the truth. Some persons experience great debility and prostration; this must be observed in making your prognosis, especially in an acute affection, for the prostration then is frequently a symptom of a fatal character. For instance, after an inflammatory affection of the intestines a person having no pain, but a pulse feeble and weak, and a fear of death, you may prognosticate he will die by the morrow. However, this symptom is frequently deceptive, for women have a sinking sensation at the epigastrium, and they state they have no "inside," and speak of death, which is completely delusive. In the first case, the weakness of the pulse is the most important point on which you are to form your judgment, but in the latter, you will find the pulse good, and locomotion easily performed. This is very curious. Some complain of drowsiness, with inordinate and depraved appetite, but by other circumstances you may ascertain whether their

assertions are true. They will also complain of tenesmus and of strangury—an intense desire to go to stool, and to void urine. These are symptoms you must elicit from the patient himself. There are symptoms derivable from other senses than general feelings, as the ear. If a person complain of a beating pulsation, with a snapping in the head; these may exist, but you cannot recognise them. With regard to sight, you must rely on the patient's account of flashes of light before the eyes, a common symptom in various diseases—moats floating before the eyes, and for double vision or diplopia—with giddiness or vertigo; also respecting taste, some have a nauseous bitter taste in the mouth, they have a disagreeable smell of which no other can judge. In a case of hydrophobia at Guy's this latter accidental symptom occurred, which was elicited from the patient, who described a disgusting smell. You will find this symptom also in insanity, and the smell may sometimes be observed, in consequence of its arising from the nose being internally diseased. The loss of sight—taste and hearing in the senses,—and the loss of strong desires in the mental phenomena; these you must also rely on the patient for an account of. You may then divide symptoms into two classes, one class described by the patient, and in the other class perceived by the medical attendant.

LECTURE IV.

EXAMINATION OF THE FACE, TONGUE, EYES, COUNTENANCE, HAND, CHARACTERS OF THE PULSE. DIATHESIS.

IF there is a peculiar predisposition to a particular affection, it is denominated "diathesis," which frequently implies a state of inflammation, or a state of weakness, debility, and probably putrescence. Of the two states—one is denominated "phlogistic" or "sthenic," meaning strong; the other asthenic, meaning weak. Great excitement, a full strong pulse, and heat of body in any particular affection is sthenic or phlogistic diathesis, but if the disease is attended with debility, weakness, and by extreme collapse, attended by an indication of putrescence as it goes on, then we denominate it "asthenic diathesis." These words are not usually used, except where a particular complaint is present, consequently they mean the character of the affection, not the disposition. In England you will scarcely ever hear these terms except the phlogistic. Old writers used the word diathesis to imply a general disposition to disease at any particular period and the disposition of the atmosphere at the season. However a constitutional disposition to disease is called a diathesis; for instance, a person having a scrofulous look and an appearance of it in one part, some exclaim that is "scrofulous diathesis," but you hear the term phlogistic diathesis most frequently. The term is used to indicate a full state of the body, rendering the individual liable to active inflammation, but it is used to limit that state when



disease has commenced, which, if indicated by quickness, strength of pulse, and heat, is then denominated phlogistic diathesis. Persons having a full pulse labour, it is said, under phlogistic diathesis, but such a symptom would be more appropriately denominated by the term *plethora*.

Human creatures are blessed with five senses, and it would be unscientific as well as stupid and ungrateful if we did not exercise them in the investigation of disease. I speak thus in consequence of a trait in modern practice which has drawn down the laugh of some. I mean the employment of the ear extensively in auscultation. It would be ridiculous to close our eyes, and shut our ears, if they can be made serviceable in the discovery of disease. If there are symptoms which we can only recognize by the ear, it is our duty so to do, so also ought we to make use of our sight, hearing and touch. Smell and taste are also at times useful aids.

FACE.

The two parts which give the most important symptoms to the sight or touch in reference to themselves, and to all portions of the body, are the head and hand, which afford us much information of the state of the body and various diseases which are present, and not seated in these individual parts, but at a distance, so that the face and hand being uncovered, these parts convey the greatest information of our body and mind. The face is far more affected by changes than any other part, except the hand. We have also a description of information by the countenance, which expresses the state of mind and feeling. You have therefore to regard this part as face, and as countenance—as a piece of the surface—a mere portion of the body—i. e. as *face*; and as a part which gives us information of the state both of the body and of the mind,—i. e. as the *countenance*. If there be fulness of blood, it is shown in the face in a particular manner; for if you examine the same extent of surface on any other part—the abdomen, back, or thighs, for instance, you could not procure the same information, simply as surface, which you could procure from the face. If the body be full—if the circulation be rapid, with considerable heat, the cheeks are tinged sooner than any other part. Hectic fever is discoverable by the red patch on the cheek; and any degree of cold is seen directly in the cheeks, in the nose and lips. A difficulty of breathing will be indicated by a leaden colour of the face, lips more or less livid—frequently the face is black. If the person has jaundice, the face indicates the disease at once, and you will discover it in one part of the face long before you will in any other part except the hand: and the face and hands bear the marks of the complaint longest after it has nearly declined. Jaundice is seen in the white of the eye and the root of the nails, before it is perceived in any other part. Should the patient be bloodless, then you see it first in the pale face—an absence of the usual vermilion of the lips, and the great paleness of the tongue, which latter organ exhibits no white crust, but is much blanched. The chief indications of *scrofula* are

exhibited in the face: you will see the tumid under lip—the dilated pupil.

The tongue betrays numerous symptoms. An inflammatory process cannot be going on in any part without an affection of the tongue. Should there be strength, generally the tongue is white; if inflammation in the stomach or intestines exist, then the tongue frequently becomes red at the tip—red all over, and occasionally there are red stripes on it. If the patient have dyspepsia and the bowels are confined, it will be covered by thick yellow mucus: you will frequently see the tongue brown or black. In putrid diseases when there is a great degree of debility, and a disposition to putrescency, the tongue will be black. Frequently in other cases it will become glazed all over, shining, and glassy, and cracked. In delirium tremens the tongue is covered frequently by creamy mucus—a moist liquid, which makes the tongue moist. No one should withdraw his observation from a patient, without examination of the tongue, head, and face.

If there is disturbance of the brain, we discover it by the eyes—they will sparkle in consequence of their redness, and they will have a watery appearance. Headache is indicated by the oppression shown in the eyes; and in some complaints in the head the eyes squint. Sometimes a person when asleep cannot close his eyelids; this is an indication of disease. In numerous affections of the head, there is frequently observed an appearance of brilliancy or dulness in the eye, or if you take particular parts you have a dilatation of the pupil, or an extreme contraction; you should attentively observe these indications, as they point out to you peculiar affections. In apoplexy the pupil is usually dilated, which indicates great oppression of the brain, but should the pupil be very much contracted, reduced to a needle's point, you can prognosticate the patient's death with some certainty, for to speak positively would be an error. Opium will contract the pupil if taken in large doses, and if you are not sure that the patient has taken this narcotic, the appearances here described will greatly assist you in forming your diagnosis. You will perceive contortions in numerous instances, especially if an infant have convulsions of another part of the face, convulsed action of the muscles of the lower jaw, which causes the teeth to grind during sleep, and the eyes to roll; these things you have beside strabismus and the half closed eyelid during sleep. You judge of debility, exhaustion, and emaciation by the orbit, for if the parts around the eye are absorbed, the eye will sink back into the orbit, which produces hollowness; these appearances of inanition will instruct you in your opinion of the patient's condition.

The face taken as a *whole* will enable you to say whether the lungs are affected, or whether there is a great disposition to affection of those organs, and frequently it is impossible to doubt for an instant that if the patient is not affected by phthisis, he soon will be. The transparency of the eye, the languor of the cheeks, and their flushed appearance, indicate the nature of the disposition. Sometimes you can

ascertain whether a person be affected by an organic disease of the abdomen or intestines by the appearance of the cheeks. In such cases you have frequently a faint greenish-yellow appearance, similar to a faded leaf, possessing minute vessels, not forming a patch of red like that in hectic fever, but reticulated similar to net work on the cheeks. The strength of a patient is indicated in an instant by his countenance. In fever and many diseases it is not of any utility to ask a question, for you can say whether the patient is better or worse by his face, or what changes have occurred subsequently to your last visit. There is a term "*risus sardonicus*," it is a term for a most horrid grin, which you perceive in persons about to die; some suppose it to be caused by inflammation of the diaphragm, but inflammation of the diaphragm rarely happens. The phenomenon derives its name from a Sardonian herb, which is said when eaten to affect persons with violent contortions of the mouth previous to death. You perceive also other singular appearances before death—namely, hollowness of the eyes, sharp nose, collapsed and contracted ears, edges of the nostrils everted, skin of the forehead firm, tense, dry; the whole countenance black, or of a leaden appearance. These characterise the "*facies hypocratica*," so denominated because HIPPOCRATES described it accurately. If a person expires from an affection that has progressively exhausted nature, these are the appearances the face wears. From the teeth one indication of phthisis is derived, not that all patients have the same state, for a great number have a beautiful whiteness of the teeth, a transparency and brilliancy not very often seen in other persons. Exanthematic and acute inflammatory cutaneous eruptions are seen much better on the face for the most part than elsewhere. If a child is in a state of "*pyrexia*," you say it is going to be ill; if of measles, you discover it first on the face; there you have running of the eyes—you perceive fullness, and the first papulæ are generally seen on the face. Acute cutaneous diseases for the most part attack the face earliest, if they do not, the face is affected, and shews the true nature of the complaint better than any other part. Why is this? Because the face is much more vascular than any other parts—the cheeks inclined to be more or less red—the slightest feverishness reddens the face, so that acute cutaneous diseases in that part is best shewn. The face discovers paralysis better than other parts; if a person be seated you cannot say whether his arm or leg is paralyzed, but if it be the face you discover it in consequence of the part affected being drawn to the opposite side from inability to swallow the saliva. When a person speaks you discover paralysis, for the tongue sometimes moves in an opposite direction to that in which the mouth is drawn. Fever causes tremour in the tongue, the frame trembles, and the tongue in particular. In paralysis agitans, if the patient is in bed and puts out his tongue it is in great tremour. In cases of dyspnoea and apoplexy, the tongue swells. The face is indicative of the mind as well as pain. In colic enteritis, you discover something wrong from the intense pain depicted on the countenance. Also in insanity, the face is strongly marked; you can ascertain the furious—the good-natured

—the proud—or desponding maniac; you can also discover much by the way he carries his head; the proud carry it upright, the desponding the reverse way. The countenance is indicative of the disease, and you can recognise a maniac by the expression of the face. You may learn a great deal by the attitude of the body. It is unfavourable in fever to observe the patient lying on his side at first, then progressively getting on his back until he lies altogether on that part, but should he sink in his bed, then his case is serious, for a greater degree of muscular strength is requisite to lie on the side than on the back, also to retain a firm posture than to sink down. Of course, when a patient sinks down, it indicates an utter exhaustion of strength. Restlessness of the body is also an unfavourable symptom in numerous complaints. Women may be restless from fidgets, but in acute diseases such a symptom is frequently fatal. If local disease occur in the face it will shew itself as elsewhere in the body, let it be swelling, mortification, or local cutaneous disease. In all countries the hand and face are most exposed. The indications of the hand, of disturbance of the system are great, but not so great as those shewn in the face. The hand being an extreme part shews the first fall in temperature, and becomes cold, similar to the nose and ears; in its difference of temperature in fever and health, it is frequently greater than other parts of the body. Cold sweat is discovered in the hand—hectic fever which flushes the face, flushes the palm of the hand, because of the fineness of the integuments. In difficulty of breathing—purple hue of the lips, fullness and leaden colour of the face, and purple colour of the eyes; you will find also a purple hue under the nails. The grasp of the hand, its dryness, its mordent heat, clamminess, firmness, and softness, are very significant. In the eye phthisis is seen, and the ends of the fingers indicate the same, as well as any other internal scrofula. The pulse is felt in the wrist much better than in any other part of the body. You might make the observations elsewhere, but not so accurately, and less easily. In the hand many indications are stronger and earlier than in other parts.

PULSE.

The pulse is frequently said to be great and small—"pulsus magnus"—"pulsus parvus," and strong and weak "pulsus validus, pulsus debilis"—and hard and soft "durus mollis." A pulse may be hard, but not large, or it may be very small; it is not strong because it is large, nor necessarily weak—if it is small in volume. If it be hard and large it is a strong pulse, if it be small and soft then it is weak, for softness may amount to weakness; you can extinguish it if very weak by the finger. Such a pulse is denominated "pulsus vermicularis," and with us "fluttering," if quick. This pulse is frequently met with, and apprizes us that death is near. In numerous cases should a pulse be very hard and small too it is denominated a "wirey" pulse, because a wire is fine and hard. A pulse small, soft and weak, a vermicular motion, not worth the name of pulsation; this is denominated "thready" pulse. You have this pulse in inflam-

mations of the abdomen, which you must not depend on. In such cases, you must not assert that you have not got inflammation of the stomach, intestines, and peritoneum because the pulse is not *viry*. There is “*pulsus frequens*” and “*pulsus rarus*,” the pulse will sometimes beat 160, and sometimes beyond, and you cannot count it, especially when weak. But if you ascertain the state of the circulation by the heart, you can with ease count 200 and upwards. There is a distinction in—“*Pulsus frequens*,” and “a *pulsus cœler frequens*,” when there are a larger number of vibrations in a given period; and “*cœler*” means strokes made in a short, abrupt manner. “*Pulsus rarus*,” and “*pulsus frequens*” are opposite to each other, the former being slow, the latter rapid “*pulsus tardus*” beats gradually, which is opposite to “*pulsus cœler*,” “*pulsus tardus*” is called by practitioners “jerking” pulse. One of the most important indications of the hand is, the artery is felt better here than anywhere. It is highly important that you feel the pulse at both wrists; if we feel the pulse at the left wrist only we often suppose the patient from extreme debility cannot support bleeding, but on feeling the right wrist you are of a different opinion, because they vary exceedingly, but the right wrist is the best guide. I have not seen pulses different as to time, but they vary as to force. I advise you in cases of difficulty or nicety to examine at the heart, and in local diseases of that organ you should examine it also; for from some complaints affecting the heart you will have violent pulse, which might cause you to bleed to a great extent, but the pulse is not an indication of general strength, but it receives its character solely by the affection of the heart. In some diseases of the heart you discover a very small pulse, and in examining the heart it beats rapidly, but through diminution of the aperture, blood escaped in small quantity; also the rate, size, and force are frequently irregular, it will vary a strength and size at different beats, and also in frequency, an irregular pulse will beat with nearly the same force, but irregularly; it will give a great thump or two, and then you have some strokes of no strength—then again violently; irregularity refers to frequency as well as force. The pulse differs at different ages—for example:—

At Birth	. . . 130 to 140.	Fourteen years	. . . 80 to 85.
One year	. . . 120 130.	Adult age	. . . 73 80.
Two years	. . . 100 110.	First old age	. . . 65 75.
Three years	. . . 90 100.	Confirmed old age	. . . 60 65.
Seven years	. . . 85 90.		

The pulse of a female is more rapid than that of a male, and people of warm countries possess weaker pulses than of the more temperate climates. These things you should remember, for if you find a child's pulse at 120, and an adult's affected with fever 120, it would be highly erroneous to suppose the child had fever; thus it is necessary to remember age, sex, climate, and particularly young children. I made sometime since what is called a mechanical examination in bed of an enlargement of the abdomen. I visited an unmarried lady whose pulse was 80 to 90, but on listening to the

abdomen, which she stated to be diseased, there was another pulsation of about 128 which did not arise from the branches of the iliac arteries, for if they had beaten it would have been at the same rate as the pulsation at the wrists which beat at 80. Something within her had a pulse at 128. All I could say was, that if she waited two or three months patiently it would come away to a certainty. *What it was* I left to the lady herself.

The doctrine of the pulse is called “sphygmica.” You should ascertain the circumstances under which the patient is placed; whether in a room of high temperature, whether distant or near a fire, what food he has taken, as that accelerates the pulse, and enquire if it be stimulating. You will observe different pulses during different periods of the day. These are important, for if the pulse be quicker from food your prognosis may not be affected. Never examine the pulse directly after entering a sick chamber, but converse a little, to allow the flurry of your patient to subside. Take the advice of Celsus on this subject; for although it may seem trivial, yet it is highly important, and you will commit great error if you neglect these precautions in a public institution. However useful indications of the pulse are, if we neglect these particulars and do not compare the other symptoms with the state of the pulse, it will be sure to lead us into error. For the state of the pulse affords only one symptom, which may not be always in unison with the state of the patient, for the pulse would lead us to suppose danger when none was present, and on the other hand, it would lead you into security when the patient is in imminent danger. But this is not peculiar to the pulse, for there is scarcely any symptom which if taken alone, would not lead to an incorrect conclusion, therefore set one symptom against another until they harmonize. When they do not, then we must weigh and balance; then form your prognosis and diagnosis. All symptoms are fallacious if taken separately, and it is only the whole taken together from which we can come to a correct judgment.

LECTURE V.

SIGHT.—TOUCH.—PULSE.—EXCRETIONS.—THERAPEUTICS.

OUR observations are made by sight and touch, but it is requisite to exercise the sense of smell, for particular odours are emitted from the mouth, when either the head or hand are affected by any complaint. Various local symptoms occur common to other parts of the body, but I have been speaking of general, not local symptoms. The neck presents some information, but not much. We suppose phthisis when we see a long thin neck, and other concurrent symptoms; and in a short thick neck, we perceive a disposition to fulness of the head and chest. The pulse in the neck will indicate different diseases. In affections of the head there will be a violent throbbing of the carotids, you may see them at a distance, and you perceive the same

in some affections of the chest; consequently you therefore perceive the necessity in observing *more* symptoms than *one*, or you would not be able to ascertain, when witnessing a throbbing of the carotids, whether it arose from the chest or head, for they both give rise to it.

A difficulty in the transmission of blood, through the chest, will cause great pulsation of the jugulars, which sometimes indicate thoracic disease. Tenderness in the neck will indicate many diseases; you can sometimes ascertain diseases of the larynx by this symptom, when otherwise in doubt. The chest affords us much information, its formation indicates the general constitution—*shallow* and *flat* in front, *narrow* at the sides, in those affected with phthisis; and it has a disposition to be *circular* in those who are disposed to *apoplexy*, from plethora and congestion. It is circular also in gouty persons. Sometimes it is deformed, and enlarges in various parts, in consequence of disease of the pleura; this is frequently the case in the sides, from a quantity of water and pus, especially of the latter, being formed in the pleura. You should, in such cases, examine the patient, for you may easily discover deviations, by the sight, in the two sides of the chest, which you could not ascertain by the touch; and these deviations are frequently very slight, that you would not perceive them by measurement, but you could by the eye. The touch will afford you great information as to tenderness—to the state of the respiration, also of the heart, for frequently in cases of a difficulty of respiration, you experience under the respiration a thrilling sensation; you will find this also in many obstructions of the heart, if you press over a part of the heart, this thrill corresponding with the action of the heart will be felt. Frequently in aneurism of the aorta, and diseases of this organ, you discover a strong pulsation by the pressure of the hand.

Hearing is an important sense in discovering diseases of the chest. The functions of the heart and lungs are performed with noise, which makes them differ from many other parts, such as the brain and liver, whose functions are performed without sound; but a noise is peculiar to the lungs and heart. If the functions of these organs become disturbed the physiological sound will be altered, and becomes pathological. The healthy sound of respiration in the lungs will frequently cease altogether, in consequence of the imperviousness of a certain part, which prevents the air from passing through it; and it arises sometimes from an obstruction in the course of the blood into the lungs, and it may occur from a consolidation of that organ. It may arise from external pressure of the lung, the dropsical pleura preventing the lung from expanding; this will inform you that respiration is impeded in that particular spot. There are unnatural sounds as well as an entire want of sound, in particular diseases of the chest; you will find in other affections that the sound of the respiration does not cease, but is much altered, and by striking the chest, if the lungs are healthy, it will cause a hollow sound, because the lungs are filled with air; but if the lungs become consolidated, surrounded, or filled with *fluid*, and you then strike it, you have a dull sound, this occurs from the law common to physics. It would be ridiculous

to attend only to the ear in these diseases; it would be as absurd as not to employ it all. Sometimes you may learn the state of the respiration by observing the breathing of your patient, it being similar to the pulse, more frequent than natural or contrariwise; you have "*respiratio frequens*" and "*respiratio rara*," which corresponds with "*pulsus frequens*" and "*pulsus rarus*." Sometimes the inspiration and expiration are suddenly performed, which is denominated "*celeris*;" and the opposite state, in which there is slow expansion of the chest, we denominate it "*respiratio tarda*," which corresponds with "*pulsus celer*" and "*pulsus tardus*." These things can be learned by sight. There are the same alterations in the respiration as in the pulse, it may be regular or irregular, slow or quick, sudden or gradual, deep or very shallow, a small quantity of air being taken in at the time; contrariwise, there may be a full respiration—full and deep, corresponding with full and strong pulse. I do not mean to say, that the lungs and the functions of the pulse take place synchronously, but as you have a quick and slow, full and small, jerking, and a sluggish pulse, so have you a slowness, a shallowness, and depth—a suddenness, sluggishness and irregularity in respiration. Difficult respiration is denominated "*dyspnœa*;" and should the patient require an erect sitting posture, in order to breathe, then we have "*orthopnœa*," which is intense "*dyspnœa*." Should you hear a wheezing sound, it is denominated "*sibilous*;" and should you hear it performed with a snorting sound, that is "*sonorous*." You may, without placing the ear to the chest, or using a piece of wood as an intervening substance, hear this sound at a small distance. Much information may be derived from the voice, which is sometimes suppressed, faint, harsh, and thrill, changes which indicate much debility; or they will be an indication of particular diseases of the lungs, larynx, or of the air passages at large. If you listen to the voice, or place your ear to the chest, or with an intervening portion of wood or any similar substance, you sometimes discover that the sound of the voice is altered, and does not sound as usual. By this you are enabled to declare that an excavation exists in the lungs. You may obtain much information from the cough; these are, the slight, severe, harsh, hooping, crowing, tearing, shrieking, hacking, loose and dry. When you hear of a cough tearing the patient to pieces, it indicates a greater or less disproportion to spasm than actual inflammation. I have heard a cough which has forced a shriek regularly, and has been quite alarming. At the conclusion of every set of expirations I have heard a deep inspiration, but not attended by whoop, similar to that heard in hooping-cough, but attended by a shriek.

By the touch you discover the force of the heart, and by listening you ascertain its alterations in sound; for instead of the usual double sound, which is heard in healthy persons, when the heart is affected in a certain way, you hear a sound similar to a pair of bellows when blowing. Frequently you hear a sound similar to the rasping of a substance, but if you only attend to these you might be led into error; but you frequently observe with them a great difficulty of breathing on the smallest motion, a swelling of the legs, and a deficiency of

urine, and you believe there is organic disease. If, in other cases, you only hear the sound, you should not pronounce there was organic disease, excepting, after repeatedly listening, you generally found the same occurrence. In observing these sounds of the heart, the greatest care is requisite to form a correct opinion on a first attendance; if you attend to general symptoms, you will perceive proofs sufficient to indicate organic disease, but sometimes there are no other circumstances present. These auricular sounds may be temporary, and you will not hear them two successive days; therefore these symptoms, like the pulse, and nearly every other, should only be taken in conjunction with *all* the other symptoms. In the abdomen, the principal symptoms are to be observed by the sight and touch, but it gives little information, except you strike it with the intervention of a small substance, either the finger or a small piece of ivory. You then ascertain if there is a tumor, and if so, whether it arises from fluids or solids, because then it emits a dead sound similar to that caused by a blow on the thigh; and if it arises from air the sound will be hollow, like a drum. By examining the abdomen carefully you will discover enlargement of any organ; the shape of an enlarged liver is ascertained with accuracy. If you strike an enlarged organ the sound is dull, but, should the abdomen be in a healthy state, the sound is hollow. If a patient be exposed, in abdominal disease, you can detect an alteration of figure, which the hand could not. It is ridiculous to prescribe at once for affections of the chest and abdomen; you may do so in cutaneous diseases, diseases of the head and other affections, but, in most cases, if you should not have the patient exposed, when affections of the chest and abdomen are complained of, you would not be able to form a correct opinion. You may discover an enlargement of various parts, the induration of the different viscera, by the touch; and, should there be fluid, its existence will be ascertained by its fluctuation. By the application of the hand you can discover inflammation of the abdomen, because it has no bony coats. In acute diseases you should be very particular in examining the abdomen by the hand, and, in fever, and other affections, you should carefully examine the alimentary canal; for if you do not do these things you may allow inflammation to escape your attention, which, being neglected, might prove extremely dangerous. You should examine the abdomen every day or two, commencing at the epigastrium, which is sometimes the part most affected, and go more or less over the whole of it in every case. In excretions of the body the sight and smell afford us the best information. By the sight we judge principally of the character of the fæces and urine; the smell affords us certain information, especially with respect to the excretion of perspiration, for the sweat frequently is sour, and has very peculiar odours. We should be minute in our observation on the urine; indeed we should not depend entirely on the sight, or smell, but institute chemical analysis to discover its quality, whether it be acid, neutral, or alkaline, or whether it contain albumen, or sugar. Of course it is only with regard to excretions that this chemical minuteness is necessary. The taste is necessary with respect to urine, and it is certainly better that the

patient should taste for himself; this is not imperatively necessary, because by evaporation, by weighing the urine, you can with ease discover if it contain sugar. I have not any objection, in diabetes, to taste the saccharine extract, because it is not urine.

The whole surface of the body together gives such information as the head, but in an inferior degree. Undoubtedly we gain much information, but much less than when we simply inspect the face. By inspecting the whole body we find it indicates fulness or emaciation; for, by observing its plumpness, we are to judge whether it be in condition; we can thus ascertain the moisture or dryness of the skin, and the firmness of the flesh, whether it is swollen or not by dropsy. To the surface of the body we exercise our sense of smell, with respect to the excretion of perspiration; also the increased temperature of the body is observed on the surface, and for more minute observation we use a thermometer, which instrument is generally placed in the hand, or beneath the tongue, or portion of the head. All parts of the surface of the frame have their own affections, and it is there the chief symptoms of cutaneous diseases, and its own affections, are discovered; but there we frequently perceive affections of the parts below. For instance, inflammation of the dura mater, in consequence of an injury of the surface immediately above, sometimes becomes *œdematous*. Thus we ascertain, by looking at the skin immediately superjacent, the state of the skin itself, and the parts beneath it.

THERAPEIA.—THERAPEUTICS.

Nature has a great tendency to relieve herself from disease, thus the injurious causes to which she is exposed may have but temporary effect, in consequence of the resisting power of the body, or they exist temporarily in the body, not being enabled to exert more than an influence. This power in nature, to be rid of disease, is denominated the *Vis medicatrix naturæ*, or *autocrateia*. For instance, if an acrid matter is introduced into the mouth, a large portion of mucus and saliva is induced, which tends to dilute the acrid matter and wash it away. If acrid matter is introduced into the stomach, or through the stomach, into the intestines, they become excited to action, and the acrid matter is rejected. A person is exposed to a great cause of disease, the cause ceases, and, in numerous instances, the effects cease also; this is not, however, always the case, but it sometimes occurs. There are other causes which cannot produce an influence on the body for more than a certain period (if they have been long applied). The poison of small-pox induces a disease only of a certain duration, for should the patient survive, it can only extend to a certain time; and it seldom happens that the same person is again susceptible of the same complaint. Some have an entire confidence in nature to shake off disease, that they leave her unassisted, this is called the *medicine of expectation*,—*médecine expectante*; this mode of treatment is best in some cases, either medical or surgical, but, on the other hand, it is utterly inapplicable to a great number of diseases. Who would sit quiet under an inflammation of the lungs, when he could obtain

immediate ease by the use of the lancet ; and if he had swallowed poison, he would be insane to wait for nature to relieve him from the noxious matter. No, he would send for medicine or for the stomach-pump.

Preventing disease is denominated *prophylactic* treatment ; that which attempts to cure is called *curative*, and if we cannot attempt to cure we may do much to palliate. Thus then medicine is prophylactic, curative, and palliative. We endeavour to cure disease, but we adopt palliatives during its progress ; this is done to lessen any symptom, or particular ones, which we desire to get rid of, or to mitigate prior to curing the disease. For instance, we attempt to cure inflammation of the lungs by bleeding, but it is of the first importance to stop a violent cough by a narcotic. Whether then we wish to prevent diseases, *prophylactic* ; to cure them, *curative* ; to palliate them, *palliative* : they may be of two kinds, *rational* or *empirical*. In the treatment of numerous diseases, not only in their prevention which is rational, we proceed on general principles, and our whole treatment is philosophical. In the first instance, we form an accurate diagnosis which teaches us the wrong state of the system, and we employ every means to remove such state. In certain diseases and their varieties, we are compelled to treat empirically, without knowing whether we shall be successful. This mode of practice is of two kinds ; in one, we have a specific for a disease without knowing why, and in others we do not know the exact varieties of the character of the malady ; so we treat at random, which treatment will not do harm, and it may do good. The treatment of inflammation, spasma, and continued fever, is in the highest degree rational ; but the treatment of ague, itch, and syphilis, is empirical. We cannot ascertain why a few grains of sulphate of quinine should cure ague, or a few grains of sulphur should cure the itch, or why mercury will cure syphilis sooner than any other remedy ; for there is nothing in the nature of the disease or the remedies employed, which should lead us to the conclusion that they have such peculiar properties. We are also compelled to be empirical when we cannot discover the proximate cause of a disease, for example, in the head, or distant parts. An unknown cause produces epilepsy ; if we could ascertain that it arose from irritation, our treatment is rational, we remove this : if we discover that it arises from an inflammatory state of the system, our treatment is rational,—we remove this. But frequently we cannot conceive that it arises from either of these sources, and then we resort to certain remedies because they do good, but they are not specifics, and in many cases are inapplicable, but still they sometimes do cure. I allude to copper, zinc, and nitrate of silver. That mode of treatment which the circumstance of the case points out, is denominated *indication*, and those things which the nature of the case forbids us to do, are denominated *contra indications*. To ascertain the necessary indications, a careful diagnosis of the nature of the case, of the varieties of the particular disease, the stages of the complaint, the strength of the patient, or the district in which he resides, are necessary ; or whether the season of the

year has had an influence on him, or any peculiar constitution of the period. SYDENHAM said that the "character of epidemics was the constitution of the year." Continued fever is frequently attended by great debility, in which state evacuations are highly injurious, and it has been considered much more preferable to give simple food, with scarcely any other treatment. We should regard the period of the year in our treatment, which has been strikingly illustrated by the epidemic of 1831; for if the least evacuation was attempted, the disposition of the disease was so great, that prostration of strength and rapid sinking were the immediate consequences. You should also be informed what are the "contra-indications," if there is any peculiarity in the patient, for some will not bear a remedy, which is appropriate to a disease, but the application of this remedy is rendered improper in consequence of some peculiarity of the individual, this relates to particular medicines, to particular articles of nutriment. For instance, if a person have hernia which it is difficult to keep in, should you desire to administer an emetic, you would endeavour to avoid it; because you might force the intestines down too violently, therefore you perceive, you are not to be quite satisfied in giving a name to a disease. Things indicated are divided into two classes; *regimen* and *pharmaceutical* means, regimen consisting of injunctions respecting food, temperature of the place, exercise, and rest. The latter respecting drugs, sometimes in prescribing medicines, however excellent they may be, they are frequently inefficacious, in consequence of want of attention to other things. For instance, if mercury be administered to stay acute inflammation, it will be abortive if you neglect to bleed your patient; and if in addition to giving mercury you do bleed, this would be rendered useless without a strict attention to diet. This is the case in diseases of the skin, for many remedies which have peculiar operations, and which we do not know how to explain, are not specifics; but they certainly do good; yet the skin with all these complaints, may be inflamed, and you must bleed, and prescribe low diet; or you will be unsuccessful in removing the affection. A symptom, like a medicine, cannot be singly depended on; and in prescribing you must take into consideration the several points. Never be dismayed because you cannot cure a disease, we effect great good in preventing disease, by suggesting improvements respecting cleanliness, good air, and food. Diseases which prevailed in former times now scarcely exist. A number of diseases are inflammatory, and we have great power over inflammation by bleeding, with other remedies. Let us endeavour to mitigate pain, if we cannot cure disease, for in making the attempt at cure we shall attain knowledge.

LECTURE VI.

SYMPTOMOLOGY.—THERAPEUTICS.

THE learned professor commenced this lecture with a history of the different Nosologies, from FELIX PLATERNUS, down to Dr. GOOD;

and in forcible language, demonstrated the inutility of all nosological arrangements; and after passing an eulogium on Dr. Cullen's attempt, describing it, as the best nosology, yet he declared he had never received any benefit from it, and advised the students not to "plague" themselves with "nosological arrangements." Dr. Elliotson then proceeded to observe:—The best and most natural mode is, to arrange disease in your minds, for the purpose of recollection, for an arrangement is useful, although a *methodical* one is not; a two-fold arrangement, first as to the nature of affections in general; whether inflammatory, structural, functional, mechanical or parasitical; for whenever we perceive a case, we consider what is the kind of affection; secondly, as to which is the part in which it occurs. I think we all make two enquiries in the consideration of any disease,—that is, the nature of the disease, and the situation of it. This is the assistance which the memory will derive from this arrangement, a plan which is continually followed by all practical authors. For instance, they all write on particular diseases, such as inflammation, cancer, and the whole diseases of particular organs and regions. One writes on the urinary organs; others on the nervous system, diseases of the chest and hand. Independent of this arrangement, in which we observe all general affections, which may attack any one portion of the body, we consider the seat of the affection in this or that part, and it will give us every assistance which an arrangement can.

INFLAMMATION

Will attack all parts of the body, at least all vascular parts; secondly, it is certainly a very common disease, and which very few escape from; and it is observed every day. It will occur by itself, and it is the concomitant of various other diseases. Some diseases are always inflammatory, though they are not simple inflammation; though there is something more than inflammation, yet inflammation is united with them. Frequently, other diseases are inflammatory, but not generally so. Inflammation occurs frequently, and benefits the body; it is a morbid process, and sometimes set up by nature, to restore, relieve, and prevent. It proceeds from a great number of causes, to the action of which we are always exposed, in spite of our wills. It is a most dangerous disease when affecting particular parts, and any part if it proceed to a certain extent; and it is very liable to be carried to a dangerous point. It may be slight, but it is liable to become aggravated to a dangerous point, attacking the most important organs; therefore, we may consider it the most important affection of the human frame. Should inflammation occur to restore, to induce health, the circulation of the part is increased; there is an augmentation in the quantity of blood, with greater increase of nourishment. When a part is destroyed or separated, a degree of inflammation is induced. there is deposition of new matters, which renovates more or less, the parts. If a bone is fractured, inflammation takes place to a certain degree; a fluid is poured forth, which subsequently becomes solid, and union is produced; and nature employs inflammation to prevent

the escape of matters into new parts, in which violent inflammation would be induced; and it occurs, also, by nature to prevent its own occurrence in another part. Should an ulceration take place in the intestines or stomach, and proceed unchecked, the contents of these are poured forth into the cavity of the peritoneum, which induces violent inflammation, and in many cases is fatal. Sometimes nature will set up a little inflammation outside the organ, exactly opposite that part ulcerated within, by which means it is glued to the surrounding parts, fibrin is poured forth which becomes vascular, and the parts are more firmly glued, which prevents the intestines and stomach from ulcerating through the peritoneum. You may frequently perceive the stomach attached to the peritoneum, sometimes to the liver. Nature employs inflammation frequently, for the purpose of giving an exit to injurious particles from the body. If a biliary calculus is impacted in the ducts, being too large to escape, it frequently occurs that these ducts become attached by inflammation to the intestines. The inflammation after it has excited adhesion, proceeds most probably to ulceration; and should this take place, the calculus escapes through the opening into the intestines. The inflammation is first set up to prevent the communication which would subsequently take place into the peritoneum, in order that the bile and the calculus shall not escape into it; and when all these parts are firmly glued together, and the danger prevented, then, at the particular spot, inflammation proceeds on to ulceration, ulceration takes place in the intestines, which induces the exit of the foreign body. Should a part mortify through inflammation, or not, and yet has become dead, useless, and injurious to the body, inflammation occurs and separates it. At the boundary of the living part, inflammation is set up, a red line is apparent at the extremity of the healthy part where the dead part commences: this is the red line of inflammation, which inflammation proceeds to ulceration, and appears as a furrow, and proceeds down until the part is ulcerated through, and the dead part falls off, having been separated by the ulceration of the living disease, inflammation although a violent, is a salutary affection. The general definition of inflammation is redness, swelling, heat, pain, or morbid heat, morbid redness. Swelling, and pain, do not need definition; but redness is common to some parts, therefore it is necessary to understand morbid redness; and regarding heat, morbid temperature. These are the four principal symptoms of inflammation, which may be defined in general in the words of Celsus, "*rubor et tumor, cum calore et dolore.*" If these constituents of inflammation are not all present, in all cases, yet the greater number are; frequently one or the other is absent, but the redness is never absent, which symptom frequently exists without swelling, heat, or pain—without any of these individually being induced—without any two of them. Sometimes the redness will be there without any one of the three symptoms. It is a question, if we should denominate this state inflammation or not; sometimes you have inflammation without any swelling being perceived in the parts, and you must conceive the part, in size, a little enlarged, there being a larger quantity of blood there than natural,

but without a sufficient increase in size, which would justify the use of the term swelling, without much increase of heat, and frequently without pain; and you should recollect, that, both the increase of temperature and redness, by which it is understood a morbid degree of them, arises from other circumstances than inflammation, so may swelling occur without pain. Redness is certainly a chief characteristic of inflammation, yet it is not every redness which can with propriety be denominated inflammation; there must be a certain intensity necessary to induce us to conceive inflammation present, how much cannot be stated, but a certain degree, similar to sensations, they must be experienced to be described, when learned. The intensity requisite varies in particular parts, according to the colour natural to them. A momentary rosiness, a blush, is not conceived to be inflammation. A degree of redness in the cheeks would not be considered inflammation, but if that degree affected other parts of the body, we should be justified in denominating it inflammation. An intense redness, that lasts for a moment in the cheeks, we should not call inflammation; a very deep red, more or less permanent, not transient, but intense, is necessary for us to say the cheeks are inflamed. The same degree of redness, and the same intensity of it, if alone, we should *not* call inflammation; but *it* would be so considered if there were present, pain and morbid sensibility. If we perceived the cheeks affected with great redness, attended by morbid sensibility, this we should denominate inflammation, especially if the patient complained of smarting and pain, independent of pressure. Redness may be less intense, and it might not continue alone long enough to induce us to call it inflammation; but should it be in a part not red, naturally, like the cheeks, which are liable to flushes and rosiness, then a less degree of it, a less intenseness and continuance of redness, would give us the idea of inflammation. So that many things are to be taken into your consideration, in order that you may form a correct judgment. Instead of the mere expression of redness when speaking of inflammation, we should say morbid redness, or preternatural redness; for what is morbid redness in one part, is not in another—redness preternatural to the affected part. There are various degrees of intensity in inflammation, and there are various hues,—sometimes bright scarlet, frequently rather purple, and of all intermediate shades of colour,—varieties of the hues in redness, which is circumscribed in patches, or lost insensibly in the natural colour surrounding the parts; so that we cannot discover where it has an end. If we use the term “preternatural,” when speaking of redness, we should also apply the same term to heat, because the body in this, and in most other countries, is always hotter than the temperature by which it is surrounded. Preternatural heat, if not excessive, is not of necessity, inflammatory; and should it be very great, and yet last but a short time, even then, it is not. A certain intensity and duration are required to constitute inflammation in the case of heat, as well as redness. A burning heat of the cheeks, palms of the hands, and soles of the feet, in hectic, is not considered inflammation, although combined with preternatural redness.

The most intense and continued heat, without it is united with very permanent preternatural redness, is not necessarily inflammation. The whole body may be affected with a burning heat for weeks, as hot as an inflamed part, and yet the skin is not pronounced to be inflamed. This is illustrated in hectic, for although there are intense spots, there is no pain, nor are the parts the most affected, tender on being pressed. I need not mention that the morbid temperature lasts only for a few hours in a day, and is a mere concomitant in hectic from another disease; there is no swelling in hectic, which justifies us in saying it is not inflammatory.

The temperature of the affected part appears more heated to the patient, than it is in reality, because, the parts are in a state of morbid sensibility. This is illustrated in palsy, for, where there is no increase in the temperature—no inflammation, yet the patient feels every thing which comes in contact with him hot, sitting without his clothes it strikes hot to him; if he puts his hand on any substance, it feels heated: this is a peculiar state of the system, and not inflammation. In inflammation there is a general morbid sensibility of the part, consequently the degree of heat which takes place, produces greater effects than it would in any other part of the body; but although from the morbid sensibility of the part, it will cause the heat to appear greater than it is, and there can be no doubt that in inflammation the temperature is higher. If the nostrils, or the bronchial membrane, or the throat are inflamed, the air we breathe, is so heated in passing over the parts that as it issues from them, and the lips, it is accompanied with a burning sensation. If you apply the hand, which is healthy, to an inflamed part, you experience a sense of heat greater than usual. A thermometer will ascertain the point to a nicety. The parts inflamed are always more heated, than other parts of the body; frequently they are as high as 107. HUNTER made experiments to shew, that the temperature of inflamed parts was not higher, nor even so high, as the circulation at the heart and chest; that if the parts had naturally a lower temperature than the centre of circulation, as the hands and feet, and they become inflamed, there temperature never rose so high as the centre of circulation. The general temperature is estimated at 98, but varies in different parts, and the farther you proceed from the heart, the lower it becomes; because there is less circulation, the parts being exposed to the temperature of the atmosphere. There is a less mass of substance on the arms than on the trunk, still less at the extremities of the fingers, nose, and ears; consequently, there is more exposure. HUNTER produced inflammation in the thorax, peritoneum, rectum, and vagina, and he discovered the heat only one degree and a half higher than previous to the inflammatory action, and sometimes he found it exactly the same. The temperature increased to $101\frac{1}{2}$, but he found it at the tunica vaginalis only 92 in health; but when inflammation was produced in it, it then rose to $98\frac{1}{2}$. You should remember that the scrotum is very much exposed to surrounding air, being a depending part, and consequently exposed to the surrounding atmosphere; as much as the hands, feet, ears, face, or nose. Now if the

temperature of the tunica vaginalis, in health, be 92, the increase to 98 $\frac{1}{2}$ is something considerable. HUNTER found the abdominal fluid as high as 104, and he asserts that if inflammation attack any part with a temperature of 98, the heat may proceed beyond that of a healthy person. These experiments may be correct, but you have only to take the thermometer, and lay it on an inflamed part in erysipelas, and cover it up, and you will perceive the temperature, although it be erysipelas of the leg, frequently raised to 104 or 107. That the temperature of body may be increased greatly under various circumstances, is proved by SIR E. HOME, who observed the oviducts of a frog when about to spawn, and when a great local activity of circulation was going on, to be *two* degrees higher than the heart. In this there was no inflammation, but an activity of circulation, approaching to inflammation, similar to that which occurs in the generative process. And if a mere natural process, short of inflammation, will raise the heat above that of the centre of circulation, what will inflammation affect? When a certain process is going on in vegetables with great activity, an increase of temperature takes place; for instance—when the “*arum cordifolium*,” and the “*arum maculatum*,” are about to burst, by placing a number around a thermometer, the temperature has been raised considerably. Twelve thus placed, so high a degree of heat was developed in the physiological process of bursting, that the instrument rose from a temperature of 70 to 143. In fever, by placing the thermometer under the tongue, the temperature is raised considerably; the same will occur in phlegmasia dolens, if you place the instrument on the thighs and cover it. I have seen it rise to 107, which is the same degree of heat observed in fever and acute rheumatism. It has been asserted, that during labour, the temperature of the uterus, on introducing the thermometer into the vagina, has been 120. In violent spasms, in tetanus, it is sometimes as high as 107; there can, therefore, be but little doubt, that inflammation increases the temperature. I have witnessed this myself in inflammation of the surface; it frequently takes place in many affections of the system. Increased heat may exist without any inflammation, so will redness exist, and swelling of an undoubted inflammatory nature, which is proved by the terminations, without preternatural heat. You will sometimes have preternatural redness and swelling, progressing to suppuration, without an increase of heat, which is denominated “passive” inflammation. Some object to this term, and say it is not inflammation, but “congestion” of the blood; but it will proceed to suppuration, therefore, I conceive we are justified in denominating it inflammation. ANDRAL gets rid of this difficulty by calling any state where there is a morbid collection of blood, “hyperemy;” an excessive quantity of blood in a part, and when it is actively inflamed, “active hyperemy;” and when the passive state occurs, “passive hyperemy.”

SWELLING

May exist without any inflammation, and sometimes it may be a symptom of inflammation; and may of course exist, just like an

increase of temperature.—an increase of redness without inflammation. A dislocation of a part, dislocation of a bone, hernia, mere effusion of hemorrhage, a mere collection of water, or any morbid growths of whatever character, the presence of air within the body, will all produce swelling; and if not attended by many causes excepting inflammation: a swelling may possess pain, inflammation, redness, united with other causes, &c. is considered inflammation. In dislocation, the ligaments and interment may be inflamed and painful, but the swelling is caused by the dislocated bone. Again in contusions, the tendons are frequently give rise to a perceptible swelling: sometimes there is a little, but after the affection, and many other superficial inflammations of the skin, are not attended by swelling at all. Frequently you will perceive a hot inflamed, in which there is but little pain,—an increase of temperature, but excessive redness and swelling: the indicate extreme congestion, and gangrene, if such a case, &c. to be expected. Sometimes a little inflammation will be attended with violent pain.—a little inflammation, a little increase of heat is attended by violent swelling. There is no necessary proportion between any of these symptoms. Symptoms will arise from various other causes than inflammation.

[illegible]

Will arise from many other causes than mismanagement.—The present
crisis of the rep. is entirely natural.—The attitude of nations
which come immediately around mismanagement is a very different
one from that of nations which are the subjects of the nation. In
which mismanagement has a direct bearing on the use of force in
international affairs. There is no doubt a great deal of mismanagement
in our domestic affairs, and yet will sometimes be a cause of war,
which is not caused by the fact that we are not a nation.

[illegible]

APPENDIX VI

SECRET

~~ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE~~

mation, the pressure of the finger on the abdomen induces exquisite pain; but in mere spasm of the intestines, the more you press the more you relieve the patient. I have pressed with both my hands, and with my feet on tiptoe, and the relief occasioned was great; but the two may be connected, and then you have a portion of relief with a portion of aggravation. But although the pain of inflammation is increased by pressure, it is caused more by sudden, than gradual pressure of the whole part; which if you embrace and press so as to empty it of its blood, you will sometimes ease the pain much. When a blister is applied to the sole of the foot, or on the ball of the great toe, and you stand gradually on the blistered part, it causes a cessation of pain, and after a little time, it appears entirely removed; but when you raise the foot, the part is felt to throb with great pain; therefore it is evident, that, if you press the inflamed parts suddenly, it causes pain; and even when you press them gradually it causes pain; and if you press them *partially*, it has the same effect; for in pressing only one part, the other part is more gorged with blood; and if you press them altogether, so as to empty the vessels of their contents, in that case the pressure can be endured, and from it relief is frequently obtained.

Dr. BALFOUR and VELPEAU have both recommended pressure in erysipelas, and others in gout, and rheumatism; but the pressure should be equable. If it is not, and the vessels become more distended, you would increase the mischief. Sometimes inflammation does not depend altogether on local causes, for there is a disposition to it in the constitution. You may impede the circulation of the part, but you will not stop the impetus of blood approaching it, for the large arteries are discovered throbbing violently around the compressed part, and sometimes pressure cannot be borne; therefore inflammation is very difficult to be cured by pressure. The pain in spasm may be diminished by pressure, while the pain of inflammation is increased by it, this will enable you to form a diagnosis; and you will ascertain whether the pain be spasmodic, or inflammatory. Pain is generally greater in proportion to the tension of the affected part. If a part does not yield, the pain is more intense. When the thread of a tendon is much inflamed, it causes generally, great agony. So when matter is collected, and cannot escape, from the unyielding nature of the parts, the pain is intense; but an incision relieving the tension, and causing the slightest portion of matter to escape, the yielding of the part will relieve the pain; and should there have been irritation of the system amounting to delirium, it is banished. Hence the great use of incisions in certain inflammations of the skin and cellular membrane. In what is denominated phlegmonous erysipelas, the cellular membrane is excessively gorged with blood and fluids; which distend the skin, and cause great pain; but a few incisions will ease it. So that I think, this is the reason that in inflammation of the serous membrane, there is more pain than in a mucous membrane; for the serous membranes are tense, attended by great pain when they are inflamed; but the mucous membranes, all are of a yielding nature; thus in them inflammation never causes

stabbing pain. Serous membranes stretch out pretty tightly; this causes violent stabbing pain when inflamed, but frequently this is not the case, and then there is less pain; because the pain is seated in a yielding portion.

DIAGNOSIS.

Pain increased on pressure, feverishness or pyrexia, and disturbance of the function of a part, indicate inflammation. If we perceive a person labouring under these disordered functions, although we cannot see the part, we do not doubt but there is inflammatory action:—that the proximate cause of these symptoms is inflammation. Sometimes there is no pain, but mere disturbance of function, or feverishness; and should this be the case then, we conclude there is internal inflammation. If the part can be seen, a few or more of the symptoms enumerated will characterize the complaint; and we are sensible that there is inflammation, although the part is invisible, whether it be red, hot, or swollen, and we cannot ascertain should the pain increase by pressure, and the function of the part be disturbed, we say then, the person has “feverishness, or pyrexia.” These are the four symptoms in life, but not one may remain after death. The pain and heat are gone; the redness and swelling you might be induced to suppose would have remained. During life you have perceived symptoms, which you had no doubt indicated inflammation, but on examination after death, all traces of inflammation are gone; this is the case in inflammation of the surface of the body, or of the eyes, of which, the patient died; but all you could discover after death, was a paleness of the parts. There may be a little swelling of the skin, but the swelling would be much diminished, and the redness entirely gone: this is a certain fact with respect to external inflammation, and also respecting general inflammation. In apoplexy, in life, the patient's head has the appearance of bursting, in consequence of an accumulation of blood, yet after the patient has died of it you perceive nothing; for when the temperature of the body cools, the vessels recover, and the blood goes to other parts by some way or other. Sometimes, where there was no doubt from the symptoms that internal inflammation existed, the marks of the complaint have disappeared after death. This is not however always the case; and you must remember that it is not every preternatural redness that you discover when death has occurred, that is inflammatory. Intense redness of the internal parts is discovered in the bodies of patients, in which you did not suspect inflammation existed. On that account, you are not to presume, that they died of inflammation, for as the redness of inflammation disappears after death, in degree, so you may have morbid redness of the parts, without previous inflammation; should a patient die with great difficulty of breathing, and a great accumulation of blood having taken place in the lungs, the liver may be found gorged with blood; the mucous membrane of the stomach and intestines may be very red; truly, not from inflammation, but from the blood which was obstructed in the lungs or heart, so that congestion occurred. If there be great debility, a continuance of the patient in one particular pos-

ture during the latter portion of his life, will cause an accumulation of blood, which after death will appear very red; and which is generally greater, in proportion to the number of capillary vessels in the part the blood inclines to by its gravitation. The blood will transude from the vessels, and dye the surrounding parts very red, so as to have the exact appearances of inflammation, from which it is sometimes difficult to distinguish it; this occurs frequently in hot climates, in very warm weather. Dr. DAVY has found this to be the case; and he says, he could not distinguish the redness of inflammation, from the redness of transudation, or the redness from the circumstance of a piece of membrane being merely steeped in blood; and he comes to this conclusion, that, if a body be examined within twenty-four hours after death, the surface becomes red, the serum of the cavities are bloody, and the viscera livid; so that you cannot form an opinion what was the state of the parts during life:—for this reason, because the hotter the climate, the sooner does decomposition occur; and the greater the decomposition of the part, the more easily transudation takes place; the solids becoming more soft, and more spongy, the blood which comes in contact with them, pervades and oozes through them, dyes them, and any of the liquids the parts contain. Dead bodies in hot weather, having lain for a time on the back, the posterior parts will become livid, and filled with blood; and the anterior portions will be pale; and if you examine the body internally in this position; you will find the posterior part of the lungs heavy, full of blood, livid, with the same appearances which you perceive in the anterior part in severe bronchitis; and no one thinks of considering it a morbid appearance, but the effect of the blood gravitating to the lowest parts. Also, when decomposition has taken place, red streaks appear along the surface, in the direction of the various veins; the blood accumulates after death in all the veins; and as the substance of the coats decomposes, the blood within is allowed to transude; thus the coats are dyed, and the cellular membrane around the vessels, is dyed likewise. You can trace the superficial veins after death from this appearance; which is a transudation of blood, in consequence of a degree of decomposition.

Dr. DAVY made observations on the importance of examining dead bodies early, in hot weather; and of knowing that such appearances as are caused by inflammation, may take place from decomposition. This has been lately confirmed, by ANDRAL, who has examined the same part of the body, at different times. Early after death, he discovered the organ pale; but if subsequently placed so as to favour the gravitation of the blood to a certain part of it, and that part was examined after some days, he found decomposition had proceeded, accompanied by intense redness. The blood will itself exude to some extent; so that a canal will be seen which contains a great quantity of pure blood. If you cause a portion of intestine to be dependent, the blood may gravitate to such an extent, so as to pass from the vessel into the cavity, and lie in the form of a hæmorrhage. RIGOT and TROUSSEAU say, they have frequently made the “blood ooze from the inner surface of the intestines, by placing

them in this depending position. Mere redness, then, will not justify you in declaring that a part has been inflamed. A part may have been red, in consequence of inflammation in life; therefore you should consider whether the body has lain long enough, so as to be partly decomposed, and to allow the diffusion of blood into the parts. A certain degree of putrefaction induces infiltration of blood into the parts, and the parts become dissolved into a liquid substance. The body, by putrefaction, becomes soft, and a great quantity of liquid is produced; which added to the pure blood, materially assists in dying the various parts. Independently of time and position, you have to ascertain if any obstructions of a mechanical nature existed during life. If you examine the body immediately after death, and putrefaction has not begun, and you place it on its back, with the stomach elevated, so that the blood could not have gravitated there, you may perceive a redness, which you might consider as the result of inflammation, if you were ignorant of a mechanical obstruction. Should there have been a mechanical obstruction, which has prevented the blood from returning through the lungs and heart, you can explain the redness of the stomach, without your referring it to inflammation. The parts being *merely* red, will not give you any information; you must ascertain if inflammation existed in life; and you should deeply consider: First,—The time when you examine the body. Secondly,—The situation of the part, relative to gravitation. Thirdly,—The existence or non-existence of mechanical obstruction. Fourthly,—If the part is very red, and you perceive a layer of lymph effused, or a great quantity of serum—it may be turbid, probably possessing flakes, then you are nearly certain the redness is inflammatory. In the heart, the lining membrane of the cavities of which, and particularly at the valves, is sometimes extremely red, without any inflammation whatever, you may ascertain whether there existed inflammation, or not, by ascertaining if the heart is soft or not, so as to permit the membrane to be dyed by the transuded blood. But if you perceive an effusion of lymph on the membrane, then you may be certain that the redness was the result of inflammation altogether, or in part.

“Common” inflammation is where a local injury has occurred, or where the parts have been exposed to various temperatures. “Specific,” is when inflammation runs a peculiar course, from a particular cause, which is not either irritative or mechanical. Thus, there are two divisions of inflammation: for instance, inflammation of the urethra, caused by the forcible introduction of a bougie or catheter, would be “common” inflammation. But the inflammation of gonorrhœa is “specific” inflammation, because it arises from peculiar causes. You perceive all the symptoms in specific inflammation, as in common inflammation, but you have some peculiar addition: the latter is the groundwork—the former has, superadded, other circumstances.

COMMON INFLAMMATION

Begins usually with pain, a blush, and a feeling of warmth, greater than ordinary. The redness, however, is frequently not in the form of a blush; but takes place in a particular point from which it spreads.

Should the part be a secreting organ, the secretion is changed, probably, in its smell; and there is an increase in its quantity. Pain and redness increase in degree and in extent; swelling occurs or tension, or swelling and tension. After the parts have swollen to a certain point, and cannot increase farther by swelling, they become tense. The secretions diminish again as inflammation progresses, but probably it does not come down to, or below, the natural amount; but they are unhealthy, and possess perhaps a smell. When this proceeds, and arrives at a certain point, the effects are apparent on the constitution. The pulse becomes quickened and variously altered in its volume, firmness, strength, and regularity; and it does not at all times indicate the degree of danger of a disease; for in inflammation of the tonsils, mere rheumatism of the joints, in neither of which is there any danger, you will sometimes have as rapid a pulse, and as violent as in many dangerous inflammations. So with respect to temperature of the body, which may be much elevated, although the attack may not be one of danger. In a case of mere acute lumbago, a man was speedily recovered without depletion, by the exhibition of colchicum; the pulse was at 160 degrees, the heat of the whole body 107 degrees. He had only taken vinum colchici. The thermometer being placed under the tongue and in the axilla, the temperature was not less than 107, for three or four days. The heat frequently varies in different parts of the body. Besides the alteration of the pulse and the temperature, the patient will become restless, uneasy in different positions, complains of general soreness, and feels great tenderness; for the whole body becomes sore. The pain in the head and loins is frequently great, and amongst the most severe of constitutional symptoms. Constitutional derangement extends to the secretions, and they become altered and diminished; from which you will have thirst, the tongue white or dry, or if there is great gastric disturbance, it is frequently yellow; or if there be little strength, it is dark. The skin becomes dry; but in one particular inflammation, that is, active rheumatism; it perspires profusely. The urine is scanty but clear:—and it is high coloured, with a strong animal smell, like gravy soup. The bowels become torpid—feces unhealthy in colour and smell; which are all indicative of the secretions being changed and diminished. CULLEN denominates these constitutional symptoms; “pyrexia,” not fever:—fever being a term applied by him to certain distinct specific diseases. Feverishness is the only term which implies anything similar to this word pyrexia, but feverishness means a slight degree of anything, whereas the pyrexia may be great; therefore I conceive pyrexia to be the better term. CULLEN uses the word to distinguish constitutional excitement under every circumstance, from those specific diseases which he calls—whether they be remittent, or intermittent, or continued—“fever:”—to distinguish it from fever properly so called. Thus a confusion is occasioned, which is remedied by calling these symptoms, when they are dependent on inflammation or other local cause, “symptomatic;” they denominate other fevers, properly so termed, “idiopathic” fevers;—fevers dependent entirely on themselves;—grounded by themselves. Constitutional excitement

and constitutional derangement, are called by some, "symptomatic" fever, to distinguish them from "real" and specific fever; which they denominate "idiopathic." CULLEN does not apply the word fever, not to this state in general; but uses the term "pyrexia." But for the purpose of being understood—it can make no difference whether we use the term "pyrexia," in cases of inflammation or "symptomatic" fever.

SYMPTOMS.

Sometimes, when a local disease commences, and before it is increased, so as to quicken the pulse, inducing other symptoms, the patient complains of chilliness, general soreness, and even rigors, which cause him to shiver with cold; the pulse is then small, the face pale, skin rough, from a deprivation of blood and its low temperature; when rough, it is denominated geese skin:—"cutis anserina," or it is called "horripilatio." When these symptoms have existed—this cold stage for a certain time, inflammation appears, excitement of the whole constitution commences gradually; but sometimes the moment that inflammation commences the system falls into a cold stage, similar to the cold stage of fever of an intermittent character; the local inflammation and constitutional symptoms appear at the same time. General symptoms are usually proportionate to the intensity and extent of the local inflammation, and also to the importance and sympathies of the affected organ; for if you saw a person with a temperature of 107, and a pulse 150, you would think him in great peril if you did not know that the inflammation was inconsiderable, and was not affecting a part necessary to life, but one of no consequence to the system. On the other hand, similar derangement, attendant on an inflammation of an important organ, or attending an extensive inflammation of another organ not so important, this would indicate extreme danger. The functions of the inflamed part are frequently disturbed, as far as the secreting organs are concerned; different organs are however disturbed. If the brain, then there is "delirium." If the lungs, you perceive "dyspnoea." If the stomach, then you have "vomiting." If the intestines, "constipation," or "diarrhoea." If the bladder, then a frequent and a painful desire to void urine. The blood becomes changed in inflammation; the red particles separate so fully from the fibrin, that it is generally colourless and transparent at the top; and when this takes place it is said to have "a buffy coat." Thus a change must have occurred in the blood; for on drawing away a portion, you find such are its effects. Sometimes the fibrin, white and clear above the red particles below, assumes an excavated form, and its centre is so depressed, that it is much like a cup; this blood is denominated "cupped"—but blood may be buffy and not cupped, the red particles may separate from the fibrin altogether, leaving a buffy coat. Frequently, in addition to this, the fibrin is drawn into an excavated form; it is then buffed as well as cupped. This buffy appearance of the blood, some say, occurs without inflammatory action. In pregnancy; but a pregnant woman is in an inflammatory state it may not be in a state of *actual* inflammation; but the condition of the womb is in reality inflammatory; for in preg-

nancy, sometimes, the whole body wastes, the eyes appear hollow, and the general health suffers for the most part more or less. The pulse is quicker than in health, the blood vessels of the womb are much enlarged, and the womb is in a state of great activity, which resembles inflammation as much as possible. With respect to other periods of generation, when animals are in heat, and copulation occurs, the genital organs become very red, hot, and frequently blacken with blood, and the vessels around throb to bursting. If this be not inflammation, it is quite evident it is almost so. Whatever terms you choose to employ, you must look at them as pathologists and physiologists. Who can wonder that the blood should be frequently buffy in pregnancy? But this state of the blood is frequently absent in inflammation. A person may be labouring under violent inflammation, and the remedies you prescribe for that affection have the most decided effects, and you cure him; yet no buff may appear in the blood. In bronchitis the pulse is quick, there is great heat of body, a difficulty for the patient to turn himself in bed, and avoid coughing; great difficulty of breathing, excepting in a shallow manner; he cannot expand the lungs without extreme soreness, tightness, and great cough; tongue white, and violent pyrexia is present; but if you bleed he is instantly relieved; so that the symptoms and treatment indicate, in the strongest manner, that inflammation existed. In bronchitis, the blood, in numerous cases, will not exhibit the slightest morbid appearances; but if another membrane had been inflamed, instead of the lining membrane of the air-tubes—for example, the *pleura*; and however small a quantity of blood might be drawn away, in all probability it would exhibit a great buffness, and likewise it would be cupped. The absence of this buffness in blood; is not a proof that there is no inflammation, and, if it is present, it is in proportion generally to the intensity of the inflammation. The buffness might guide you in your judgment, if you are in doubt whether the patient is labouring under inflammation; the presence of which should very much confirm you in your conclusions, that the symptoms exhibited were inflammatory. But this buffness is not in proportion to the danger of the inflammatory action; for example, in acute rheumatism, where there is no danger (but frequently there is danger from internal inflammation), the blood will be greatly buffed, and frequently intensely cupped. You will then consider this as an indication of inflammation, or an inflammatory state. Its absence will not always justify you in declaring that there is no inflammation; nor is the buffy coat or cupped state a conclusive proof that the inflammation is of a character highly dangerous.

LECTURE VIII.

INFLAMMATION.—BUFFY COAT OF THE BLOOD.—COAGULATION.—
TERMINATIONS.—RESOLUTION.—EFFUSION.—SUPPURATION.

THERE are many things to be considered, and observed, with respect to the buffness of the blood in inflammation. If you draw

the first cup from a patient, it will frequently be buffy; while the next cup taken within a minute or two after, will be much less buffy, and sometimes it is not at all buffy; this, in my opinion, arises from an amendment in the condition of the patient. Bleeding is frequently extremely efficacious, for it will sometimes check inflammation directly; and we may conceive that some benefit is derived by the patient, before half the blood we intend to draw is taken away. The fibrin forming the buffy coat, is more abundant in *inflamed* than it is in healthy blood; and we are informed, that the quantity varies in the different cups drawn in the same bleeding; thus inducing a change in the blood from depletion, not in mere buffiness, but in the quantity of fibrin; whether it forms buff or not, it is discovered to vary.

COAGULATION.

Some contend, that the death of the blood causes the formation of coagulum. I do not assent to this doctrine,—and why? Because a coagulum frequently becomes organized; vessels do not merely shoot into the blood, but they actually form in it, and they unite to surrounding parts which are healthy. SIR E. HOME says, he has seen vascularity in a coagulum when detached, when there were no vessels to shoot into it; but by its inherent vital power it had produced vessels. HUNTER declares, that coagulation of the blood is from its life. I cannot agree to this opinion; for we well know that freezing will kill eggs, and therefore the same process will kill blood. If blood be frozen, and then thawed, the moment it becomes liquid, it coagulates again, the same as before it had been frozen. We must presume this blood to have been killed by frost, consequently, its subsequent coagulation cannot be ascribed to its life. SIR C. SCUDAMORE asserts, that when blood coagulates, a quantity of carbonic acid escapes; and the blood coagulates sooner when it is so placed, as to favour the escape of this acid. If blood is exposed,—if it is suffered to trickle down the arm, instead of being poured immediately into the receiver, or a large shallow basin, which of course presents a greater surface to the atmosphere than a smaller vessel; or if it is received into a vessel calculated to retain heat, which does not allow the blood to cool so soon; or if it is received into a warm vessel; under all these circumstances, it is said, the escape of carbonic acid being thus favoured, it sooner coagulates. The late DR. TURNER is a high authority; he stated that no carbonic acid escapes during coagulation. Now in the same dead body we have a quantity of blood, liquid in one part, and coagulated in another; which latter is commonly found in the cavities of the heart, and its various large vessels. I do not ascribe the coagulation of the blood to its life, or to its death, or to any escape of carbonic acid; I do not know why the blood coagulates. The buffiness of the blood is decidedly affected by the slowness of the coagulation; and if the blood does not come away freely at first, but more rapidly afterwards, the quick coagulation of the first cup, may not give time for the red particles to subside, which circumstance, may prevent buffiness; therefore, a quick or

slow coagulation of the blood, affects its buffness. The second cup being poured out more freely than the first, it may coagulate more slowly; and if there is a disposition to buff, it is not an unusual occurrence to have no buffness in the first cup, but in the second; although a patient may have improved from depletion, and the blood have a disposition to form less buff in the second cup than in the first. The trickling of the blood down the arm into the first cup, may give rise to an opposite occurrence,—thus counterbalancing the benefit. An improvement in the patient may cause buffness in the first cup, while there will not be any in the second; or on the other hand, you may have no buffness in the first, but in the second cup; although the patient has improved, from the accident of the second cup not coagulating so quick as the first. Quickness, or slowness, may affect the formation of buff, but they are not the cause of it; for we have known, that of two portions of the same blood, one has remained fluid, ten minutes after the other portion had commenced its buffness; and the former portion has shewn no disposition to buff at all. If a stream of blood is exactly the same, and it flows into a cup with equal quickness, frequently the difference of buff is very considerable. You may perceive the buffness to be the same, if one cup has coagulated very slow, and the other very quickly. DR. STOKES, in his pathological observations, has published twenty-seven experiments, in fifteen of which, buff was formed; and in the remaining twelve, it did not form: no coagulation occurred in three, of the latter twelve, in less than from twenty to forty minutes,—in four, for eight minutes. There was plenty of time, through the slowness of coagulation, for the separation of the red particles from the fibrin; yet you perceive the result. In the fifteen, not one delayed to coagulate longer than fourteen minutes; and in all but three the blood coagulated in five minutes; and yet no buff was produced; consequently, the real cause of buffness in inflammatory blood, is decidedly not the slowness of coagulation. I do not know from what cause it proceeds, but probably from the thinness of the fibrin; but from facts it appears, the fibrin of buffy blood is thinner, and in greater quantity, than of other blood; and if this be the case, we may believe, that the red particles will separate from it much more easily, and subside to the bottom. We know that the quantity of fibrin varies during the flow of blood; so may the thinness, which may be the cause, why blood that exhibited buffness in the first cup, does not in the second; for the blood being thicker, the red particles do not easily separate: therefore, the buffness of the blood is not in proportion to the slowness of the coagulation. Dr. Stokes' experiments confirm my opinion; yet I believe that buffy blood generally coagulates more slowly than other blood. I do not attribute the buffness to this; the slowness of coagulation may be caused by the fibrin being thin, and perhaps less disposed to solidity. SIR C. SCUDAMORE states, that mere celerity in the circulation does not affect any changes in the blood, and it is not because the pulse is rapid in inflammation, that the quality of the blood varies; for in pure fevers, or exercise, there has occurred great

celerity, and yet no buff has been discovered in the blood drawn away. Some deny this.

Inflammatory blood exhibiting buffness, coagulates generally more slowly than other blood; and yet the buff coagulates, if there is strength of body, more firmly than crassamentum in health; but the firmness and cup-like form, are generally proportionate to the patient's strength. You should recollect that there is much firmness in the coagulum if there is not any cupped appearance. The buffy coat is generally proportionate to the strength of the patient; and the firmness, and cupped form, some declare, to be greater. I do not know that they are in inflammation of the fibrous membranes, as aponeuroses ligaments and tendons, and in inflammation of serous membranes, than in other parts. Should it occur, that the buff of the blood is not firm, it is called "sizy;" and should the coagulum or blood be soft,—if it be buffy, or not,—generally, the serum is too large in quantity. At least, when the blood is watery, then you will frequently find the coagulum soft; should it be a red coagulum or a buffy one. TRAILL and GENDRIN state, that the "serum of inflammatory blood is altered in quality," and that it contains twice as large a quantity of albumen, as you find in perfect health. Independently of the buffness, the cupped appearance of the blood is greatly affected by the size of the vessel into which you draw it. Should you bleed a patient into a tea cup, you will have a greater chance of finding it buffy, than in bleeding in a hand basin; the larger the vessel, the less will be the disposition of the blood to form buff, or the cup-like appearance. You ought to draw blood into small vessels, in order to be accurate in your observations. DR. HASTINGS declares, that with a microscope, he has discovered minute changes; he has found the blood in inflamed capillaries, of a deeper colour than it generally is, and as it were broken down—homogeneous; and the red particles were absent. This does not apply to the general blood; but to the blood in the inflamed vessels. In three experiments, he discovered flocculi in them, which vanished as he directed his eye to the healthy vessels. Whether these flocculi were minute coagulations of lymph, formed in consequence of the slow motion of the blood (which moves very slow in inflamed parts), and were re-dissolved when reaching the vessels where there was a proper motion, DR. HASTINGS does not say, nor can I elucidate the matter myself. In the vicinity of inflamed parts, the blood is generally said to be black; and on your applying leeches, at the end of several applications, the blood alters and becomes bright. The blood which comes away on the first application of leeches, is generally black, and it will frequently remain black until after two or three applications of the leeches; and the blood that flows after, will become brighter, which, in the former case, arises from the slow motion of the blood, which induces it to assume a more venous character. A great number of times I have known the blood black on the first application of leeches; and once in a case of chronic inflammation of the liver, so offensive, as to be in a state of putrefaction the moment it was taken from the room; but on a

repeated application of leeches, it regained its natural odour and nature, and of course became brighter. Do not consider inflammation as merely affecting the solids; for the blood itself is affected.

TERMINATIONS.

Inflammation may terminate in complete health of the affected part, and a part may in a direct manner resume its former state; this is termed "resolution." When there is resolution, there is generally some increased secretion, either in a distant part, or if of a secreting part, then there is secretion in the part. Should it be a serous membrane, more or less effusion occurs. If it be a cellular membrane, there is a more or less œdematous condition observed externally. Should these be slight only temporary, probably no inconvenience is experienced; and this termination of inflammation is denominated "resolution." Should it be a serous membrane that is inflamed, and there is a copious secretion, it is said to terminate in "effusion." Should it be a cellular membrane that has been attacked, and it should not terminate in resolution, a new fluid is continually being formed called "pus," which termination is termed "suppuration." If it be a mucous membrane which has been inflamed, you have generally a great discharge of mucus or pus; consequently you may have suppuration from a mucous, or a cellular membrane. Actual pus is continually found in the inflammation of a mucous membrane; sometimes you have pus produced from the interior of a vessel. Although writers denominate these "terminations," yet these copious secretions are not necessarily so; and that, when they commence, it is not a matter of course that inflammation shall end; for inflammation (I think) sooner or later, induces effusion and suppuration, in consequence of the inflammation not ending when they occur. The part may suppurate, or fall into a state of effusion; yet, these processes may be inflammatory, and you should still persevere in your anti-inflammatory treatment; for heat, pain, tenderness, and the other symptoms may all be present. Inflammation, then, induces these sooner or later, or these occurrences take place in inflamed parts; and as the case may be, the inflammation subsides or not. But inflammation may terminate not in health directly, but after these processes, but in death, either local or general. Death will result from inflammation without any other occurrence. In enteritis, it is very common to see patients die without mortification, or other change than inflammation; and inflammation sometimes will not destroy general life, but the life of the particular part affected; and is then said to terminate in "mortification." But inflammation may continue in the parts surrounding the dead parts, and extend farther and farther, until the parts die.

RESOLUTION

Is an actual termination; for when inflammation is resolved, the whole of the symptoms decline, and new ones do not occur; which is an essential characteristic of resolution. There is generally a deposition of a large quantity of red sediment from the urine in this state.

As the inflammation progresses, the urine is generally high coloured, and clear; when it subsides there is frequently a copious red sediment. Chemists assign as a reason for this, that healthy urine possesses *lithate of ammonia*, which is pale, and white; with a yellow colouring matter, the nature of which has not been discovered, but it is believed to be probably a modification of *lithic acid*. To *lithate of ammonia* out of the body, add what are denominated, the “purpurates,” and you have instantly a pink substance, similar to that which you find in hectic fever; and should the urine possess its usual colouring matter, mix that with the pink, which was produced by the “purpurates,” and the lithates of ammonia, and you produce a red colour. The pink and yellow mixed form the red colour. They also declare in this diseased state, there is an excess of nitric acid formed in the urine, which acts on the lithic acid, and thus converts some portion of it into a new acid, denominated “purpuric;” which united with the salts of the urine, produces the purpurates;—which mixing with the lithate of ammonia, which is constantly in the urine, make a pink deposit, this mixed with the yellow colouring matter becomes red. The lithates of ammonia and soda are formed in excess in the urine, in inflammation, and nitric acid is produced. The reason why the urine is red, and void of sediment until the inflammation terminates, is, the same substances are in the urine, but are held in solution, while the active symptoms continue. When the activity of the complaint declines, then an excess of lithic acid is formed, thus producing superlithates, which are very insoluble; consequently a great portion falls down in the form of a precipitate, and you have red sediment. These are the opinions of Dr. PROUT. You find then, the deep red colour with transparency, in the activity of the disease, and the copious red deposit during the termination of the complaint; the very same occur in common cold, and frequently in considerable quantity.

EFFUSION.

Should not the inflammation terminate in resolution, but proceed on to effusion which from its abundance can do injury, and the symptoms of inflammation subside, or not, you perceive a fresh set of symptoms, arising from a compression of the parts. For instance, if the pleura have been inflamed, and induces at last a copious effusion, after the pleuritis has subsided, you have a fresh set of symptoms dependent on the compression of the lungs. However, if there is very great effusion from a serous membrane, there is generally something more. Fibrin is thrown out, sometimes forming layers, or diffused in the serum; flocculi, small or large, are thus formed and the serum is not only turbid, but you have flakes in it. Should serum be thus poured out from a serous membrane, it is at last sometimes entirely absorbed, while the fibrin remains. Sometimes, we discover fibrin when there are no appearance of serum, from the absorption of the serum, or from the circumstance of fibrin only having been produced. Fibrin thus poured out has been seen within four hours after inflammation had begun. Dr. THOMPSON has perceived lymph

on a serous membrane in four hours after he had induced inflammation. SIR E. HOME has known an effusion of fibrin form vascular adhesions within twenty-four hours. Frequently the effusion which takes place is not serum, lymph, or serum and lymph, but pus; consequently, you may have the pleura, pericardium, or the tunica vaginalis filled with pus, and frequently a mixture of pus and serum.

SUPPURATION.

Suppuration is the third effect of inflammation; when the pain generally subsides, but the swelling remains; and should there not have been much swelling during the inflammation, probably there is considerable swelling now; however it does not feel hard as when inflamed, but for the most part soft, and sometimes you may find fluctuations very early; probably you will not discover this at first, but on the fluid increasing you gradually discover more, until the fluctuation is quite decided. The pain may decline at first; but as the fluid increases fresh pain is felt from tension of the part, which fluid is absorbed or evacuated by nature or art. In an effusion from a serous membrane, or where there is suppuration of a cellular membrane, or any other organ you may have fresh symptoms from pressure, if the part in which the pus is formed is one which will suffer by mere pressure. If the suppuration be very extensive, you perceive great shivering of the whole body. Also you will have rigors, when the matter is collecting, or soon after it has formed; after a time there will be great heat, and perspiration—or “hectic fever,” marked by quick, but weak pulse, heat of the whole surface of the body, particularly the red flush of the cheeks, heat of the palms of the hands, and soles of the feet. The whole of these are frequently red; but sometimes they are partially so, forming patches; consequently the cheeks exhibit patches the size of half a crown piece, and more or less intensely red, while the remaining parts of the face are of the usual pale character. The patient has profuse sweating as soon as he drops into sleep; and sometimes he perspires when awake; these symptoms are increased at noon, and night, and indeed when any food is taken. It is remarkable, that if a patient sleep but for two minutes, although he may not know it, it is common to see the sweat break out partially, being observed about the head and chest particularly. The sediment of the urine in these cases is not red, but pink; when it is red, it is denominated “lateritious,” having the appearance of a brick. During suppuration in hectic fever, the sediment is pink. The chemical changes are the same, excepting that the pink colour is not changed to red, because the yellow colouring matter of the urine is absent; and therefore the pink of purpurates and lithates remains unchanged. Sometimes the intestines will pour out a quantity of fluid as abundantly as the skin, consequently you have purging alternately with the sweating. If you perceive an increase in one there will be a decrease in the quantity of the other; they are denominated “colliquative,”—melting the patient down. Hence the term. The alimentary canal is frequently inflamed; and when

you examine a patient after death, who has been affected thus, you discover the mucous membrane red, and not unusually ulcerated. The tongue is at length red, or yellowish, or of a deep brown colour; but commonly, and for the most part, it is red either at the surface, the tip, or the side and tip. The mind of the patient is excessively alive to every thing, and at last a degree of delirium occurs; and, when it does, it is commonly the forerunner of death. Of course there is extreme debility, and wasting of the body. The symptoms of hectic fever, however, will occur without suppuration, sometimes from great depression of mind, and in women from excessive suckling; all these symptoms will remain for a long time, but by proper management the patient becomes convalescent.

ABSCESS.

Pus formed, and collected in a mass, is termed "abscess." If a formation occurs in a cellular membrane, fibrin is thrown out; and the cellular membrane becomes exteriorly to the fibrin more dense and vascular. A cavity is formed in the lymph containing pus; and the exterior of the cavity is formed of the condensed cellular membrane. The lymph is absorbed gradually in a part nearest the surface, or some exit of the body; consequently if it is near the surface, the portion nearest is absorbed; or near the intestines, the portion nearest is absorbed. Where there is the easiest exit, the fibrin becomes absorbed. Should pus escape into a part where it might do injury, adhesions form round the part, thus preventing the pus escaping into it. This is a most wonderful and beautiful provision of nature.

LECTURE IX.

INFLAMMATION.

I HAVE recorded every fact relative to the blood, in my notes to Blumenbach's Physiology, to which I shall frequently have occasion to refer you. The cause of the buffiness of inflamed blood, has not been sufficiently explained; probably it is caused by the thinness of the fibrin; because it is said, that the fibrin is thinner in inflamed blood, than when individuals are healthy; if this be true, then the red particles subside with more ease, than if the fibrin were healthy. Pus can escape by the intestines, trachea, the bronchia, stomach, and bladder, or by the several canals which lead to the surface. Danger frequently arises from the walls of the abscess becoming thin, which might allow the pus to enter the cavity, or into some other part of the body, thus inducing serious consequences, should the pus enter the peritoneum; then a mass of additional lymph is generally thrown out, which glues the parts together, to prevent the escape of pus in any improper direction.

POINTING.

If absorption takes place near the surface, you will perceive the principal swelling in one part; and the gathered matter is said to

“point.” After some time a small opening is discovered, and the collection escapes; and in the interior of the cavity now opened, we discover red granules very vascular, and surrounded by pus which they secrete. Frequently the opening from being small enlarges, which induces considerable absorption, ulceration commences, and extends considerably, and sometimes exposes the cavity. Thus the granules grow very large, and their progress fills up the cavity, this is called—

GRANULATION.

Portions of skin form on the top of the cavity when filled up, and amalgamate with the other skin; thus forming a new skin, and the granulations become healed. There is considerable loss of the cellular substance when abscess forms, the cellular membrane being frequently destroyed. There is also a contraction in the new parts; for the granules from being highly vascular, are subsequently less so, in consequence of the loss of the cellular membrane, and the contracting of the newly formed skin; when they heal there is depression. In minute abscesses, such as pock in small-pox, you will perceive but a small depression, for example, a pit; and when a more extensive collection of matter forms, then you have scars; they being similar, but on another scale.

DIFFUSED SUPPURATION.

The new parts contract. The loss of the cellular membrane frequently prevents the joints from extension, bends the arm, and the fingers on the hand. When pus is thus formed in abscess, and there is an absence of lymph, then it generally becomes diffused; sometimes pus forms in the cellular membrane in a diffused manner, and the running is considerable; and causes serious mischief, inducing in its course new inflammation; and a great devastation of the parts, which you will perceive in that form of erysipelas denominated “*erysipelas phlegmonoides*.” If suppuration occurs in the cellular membrane, which is not controlled by a cup of lymph, it causes a running over an extensive surface; sometimes the leg, thigh or arm is completely covered. Frequently pus forms; there is an absorption of the skin and cellular membrane, and no matter is formed; as for example, in the throat and on the skin. If a mucous membrane becomes affected by simple inflammation, the epithelium will be absorbed along with a slight portion of the mucous membrane itself; sometimes an ulcer forms, which secretes pus, and you cannot discover any matter beneath. The matter in abscess forms in the solid structure and cellular membrane, which tends outwards; but more commonly in mucous membranes; as you will perceive in the throat, the disease progresses inwards. The external part shows a little inflammation and is abraded. Matter collects on it, and produces an ulcer, when no abscess has existed. Should the part heal, it is filled up just the same as the cellular membrane is, when the matter has been gathered in the cup. Healthy pus is an opaque fluid, sometimes white, sometimes yellow; short, creamy, and homogeneous, which will separate on your finger into two parts. It will not hang in a string;—it is without smell. Sometimes it is bland

to the palate, but is not very often tasted, excepting in gumboil; and should it be healthy then, it is inodorous and bland, but mawkish. Atmospheric air will turn it sour, although it is neither alkaline nor acid. It is distinguished from pure mucus by being put between two bits of glass, and looked through to the sun. It contains globules, and is insoluble in water; globules causes iridescent appearances, which is not the case with mucus, because mucus does not possess globules. There is a great difference between mucus and pus, for mucus will drop in threads, while pus breaks short from the finger. This is strikingly illustrated in gonorrhœa, for when the affection is severe, the pus breaks off short; but when the disease is decreased in violence, a secretion of mucus again occurs, which induces the patient to believe that the affection is cured, because the discharge can be pulled out of the external genital organ. There are no globules in pus, until the secretion has been discharged from the vessels for ten to twenty minutes.

CHEMICAL TESTS OF MUCUS.

HUNTER states, that muriate of ammonia will coagulate *pus*, but not *mucus*. Dr. DARWIN states, that pus will not dissolve in a solution of caustic potass, but that pus has on this test being applied, a viscid semi-fluid substance, stringy, similar to mucus in diseased bladder, and it will not dissolve in water. If the viscus is in a state of chronic inflammation, and the mucous membrane in a state of cystorrhœa, and there is great discharge of mucus from the surface, its consistence is ropy, and may be dragged out to some length, and it has the same appearance which it generally possesses, when mixed with a solution of caustic potass, the same effect is produced by adding some sulphuric acid to the pus; but, in healthy mucus, these ingredients will produce flakes instead of pellucid substances. BAUMES and ANDRAL oppose this difference, while GRASMAYER states, that if pus is tirturated with an equal quantity of water, and the combined fluids mixed with an equal quantity of carbonate of potass, they will in a few hours produce a jelly; this process will not affect mucus in a similar way. There is also another difference, mucus will not generally sink in water—pus does, and when diffused, the water becomes white. I mention these distinctions, but must add, that mucus and pus will run into each other. If mucus be diseased, it will be similar to pus,—*puriform*; and by degrees they will amalgamate with each other.

It has been considered important, in diseases of the lungs, to discover the distinction between pus and mucus. In abscess of the lungs, when matter is discharged, you will perceive a quantity of mucus secreted from the bronchial tubes; and the two secretions are expectorated at the same time; and in proportion as the mucus surpasses in quantity the pus, or the pus exceeds in quantity the mucus, you will be able to characterize one from the other. Should the mucus be considerable, the pus can be supported by water, and not permitted to sink. Frequently there are many abscesses of the lungs and excavations, which do not secrete pus, but mucus; the lining membrane of which, if new ulceration has not occurred, may secrete mere mucus.

All mucous membranes, where inflammation has taken place, may produce absolute pus: thus you perceive a discharge of pus from the lungs, without any ulceration. But there may be ulceration of the lungs, but the lining membrane of the abscess may have become of such a mucous character, that it will secrete real mucus to the exclusion of other matter. You may have mucus from abscess of the lungs, and pus from the bronchial tubes; these being irritated and combined together in many proportions. SCHWILGUE states, that pus consists of albumen—extractive matter—fatty matter—soda—muriate of soda—phosphate of lime—and other salts. Some state, that if pus is scrofulous, there is more soda and muriate of soda, than when the pulse is healthy. As to the former belief, that pus was occasioned by a dissolving of the solids, experience has shewn that this idea was erroneous, because pus is a new secretion. But I believe pus will dissolve and make a solution of dead solids, although the secretion itself *is not* dissolved solids. HUNTER discovered that dead flesh would dissolve quickly in pus. He laid an equal quantity of dead flesh into pus, into jelly, into water, and he found the portion put into pus dissolved, while that put into jelly and water did not. Thus pus is useful in dissolving dead solids. The cellular membrane always dies in plegmon; pus will no doubt dissolve portions of the cellular membrane, but not *all*, for in opening an abscess you will perceive portions of it escape, which by many persons is called core. Ancient writers denominate healthy pus “laudable;” “praiseworthy.” When healthy, it abounds with globules.

M. GENDRIN states, that the globules differ but little from the globules of the blood, excepting that they are larger, and of an opaque yellow colour.

I have heard the term globules objected to as improper, because they are irregular, but all agree that there are certain particles in the pus, as there are in the blood. If globules do not appear in pus, and it be watery, then we call it “ichorous” pus; if it be thin and stained with blood, it is denominated “sanious;” if there are small curds in it, being shreds of lymph, then we say it is “scrofulous” pus. Healthy pus, although mawkish to the taste, soon becomes foetid in diseases of the bones—very much so if the tonsils have suppurated, and the matter is let out: in fact, whenever the pus is formed near a bone it is foetid. Pus is formed in a few hours after inflammation commences in a mucous membrane; generally an abscess will be produced in ten to eighteen hours from the period of the inflammatory symptoms. I forgot to state that granulations, being large, are sometimes spongy, and are then denominated “proud flesh.”

MORTIFICATION

Is indicated by the parts being of a deeper red, or dingy red—then purple, and lastly black; when dead then they are green and other colours. There is an immediate cessation of pain, with coldness; sometimes vesicles are discovered on the surface, filled with a bloody serum, and sometimes with a pale fluid. The skin is frequently variegated, and

sometimes crackles beneath the touch. The part will swell in consequence of the extravasated air, and will have a "doughy feel." These symptoms are local. I will now speak of general symptoms—great prostration of strength with restlessness; face ghastly; pulse rapid and very weak, probably intermitting and irregular; a general diminution of the temperature of the body with cold clammy sweats, tongue brown or black, manners become very quick, and sometimes delirium. An interruption sometimes occurs to all the symptoms immediately preceding death, from inflammation, even if inflammation does not induce mortification or other local changes. Should mortification occur to a great extent, you will have all the general symptoms before described succeeded by death, but often with no other local change. Restoration of the parts, when they have become of a purple colour and cold, is not impossible, although incipient mortification has taken place. Congealed parts will recover by judicious treatment; and you are more likely to be successful in animals of a warm blooded than in those of a cold blooded temperament.

Dr. THOMSON states, that, if "a whole limb be frozen you cannot restore it." There is a higher degree of mortification, that is gangrene, being the utter death of the part, when gone completely then we term it "sphacelus," it is then cold, black, and putrified. The three degrees of mortification are, one, the parts purple, and cold, another, an advance in the disease, but the part is not yet quite dead, and lastly the part is dead and the putrefactive process commenced; which depends greatly on the state of the weather. Mortification is the generic term for the different stages. Should the part in a state of sphacelus be unimportant to life, nature will separate it from the body; the larger vessels ascending to the affected part, become plugged up; the blood in them becomes coagulated, or adhesive fibrin is discharged from the inner surface, so that the blood is stayed, and is coagulated above the plug, in consequence of which the plug is increased. Dr. THOMSON states that the "coagulum never extends higher than the communicating branch," yet, we might suppose, that the coagulum takes place behind the plug near the heart. Dr. T. has "perceived a vessel entirely connected together, completely obstructed without the formation of a plug; the whole obstruction being produced by an effusion of lymph; which has become organised, and formed an internal adhesion." He has also perceived "an artery completely obstructed, without any lymph or plug; but simply in consequence of its being closely contracted, so that a bristle could not have been admitted. Thus the contraction has formed as complete an obstruction to the blood as a coagulum, or a quantity of fibrin. The same occurs in amputation, if ligature has not been applied, for the contraction is great, and stops all hæmorrhage; which nature thus prevents from mortified parts, in consequence of the obstruction of blood in the vessels leading to the diseased part. A red line is perceived, which is the boundary mark of the affection which indicates inflammation, and in it ulceration takes place; which goes down in the healthy part lower and lower, and separation takes place,—perhaps a whole extremity is thus severed from the trunk.

Bones will sometimes die, and you will not perceive any special disease near them ; then a new bone will form, but the process of nature is very dissimilar to the separation of soft dead parts, for, the new bone is formed beneath the periosteum, and around the dead part ; and in this way what is exterior to the new bone, namely, the periosteum, the ligaments, the cartilages ;—they all become attached to it. Old bone becomes detached and loose, then an opening is formed in the new bone, ulceration occurs, with granulations in the inner surface, which eject the old bone through the opening in the new one ; you will be called on sometimes to draw out the old bone and enlarge the openings in the new, but this is the process of nature when bone dies. Old bone within will sometimes emit a sound similar to the perished interior of a nut. This is called necrosis ; old bone is denominated “ sequestra ;” should a flat bone be dead it is separated by ulceration. Granulation from under the old bone pushes it off, which is “ exfoliation ;” because the bone comes off like a leaf. These are the effects of inflammation improperly called “ terminations” for inflammatory affections do not always terminate when they occur, but sometimes effects after these extend. Writers mention schirrhus, which becomes cancer, amongst terminations of inflammation, which is erroneous ; for schirrhous occurs without inflammation, a part without these will be cancerous, and it seems a specific affection. These authors may be correct, if they mean by schirrhus, mere induration, for one of the effects of inflammation will tend to harden ; thus continued inflammation induces induration, and schirrhus in this case, would be the effect of inflammation, but certainly not a termination ; for the inflammation proceeds, and has a tendency to soften, as well as harden the parts. Induration is rather the effect of chronic inflammation, and acute inflammation induces softening. When inflammation is violent it cannot last long ; and should it not be violent, then it may continue some length of time. Inflammation has destroyed life in a day, and sometimes it may be acute and destroy in a few hours. I know a case of a lady having pericarditis at seven in the evening, and she ceased to exist before eight the succeeding morning. Inflammation will seize a person in a moment ; as for instance, in infancy, a rush of blood will take place to the brain, the eyes will appear red, face flushed, great pain in the head, with distraction ; the infant screams, and in one or two minutes death terminates its sufferings. The same symptoms,—the same terminations, will occur in adults. What proves that momentary inflammation destroys life, is, the state of the head after death ; for blood is discovered in the cranium, and externally also. There are variations in inflammation, if not violent it may last months ; it will sometimes remit, often be violent, but its severity will not continue during the whole period. If it takes a chronic form, it lasts indefinitely causing the structures to change. The redness induced by inflammation will continue for many years, and it will cause no pain ; for instance in burns, and after cutaneous eruptions, but this redness will disappear after a few years, and the vessels will imperceptibly recover their

tone, although they have been in a state of passive dilatation. Ulceration will leave the skin of a dingy red, almost of a brown colour, a sore leg leaves similar appearances; sometimes the marks will be black and much discoloured.

LECTURE X.

INFLAMMATION—VARIETIES OF.

DR. C. SMITH has the credit of first directing attention to the varieties induced in structure by inflammation, but he wrote of inflammation only. PINEL adopted his arrangement, and acquired reputation; while DR. SMITH is passed by with little notice. BICHAT subsequently, in his "Anatomie Generale," observed, that "all diseases might be considered according to the structure they affect." DR. SMITH mentions five structures which give rise to decided varieties in inflammation—skin, mucous membranes, serous membranes, cellular membrane or the substance of organs, and muscles. But probably it would be correct to say the fibrous membrane; for instance, ligaments and aponeuroses, tendons, and periosteum. When the skin is inflamed, it appears of a shining redness, removed by pressure, and when not pressed, the inflammation returns. Should it be of a simple character, a patch, or merely inflammation of a part, we term it "erythema," but this term is only applicable to a *patch* of inflammation. The pain felt in inflammation of the skin, is smarting, caused by a burning heat; and when the inflammation terminates, the cuticle sometimes separates, and exhibits branny particles, scales, and frequently large shreds; we call this "desquamation." Sometimes vesicles appear of different sizes, with effusion of serum into the subjacent cellular membrane. If the skin becomes inflamed, the parts swell, and become puffy, and oedematous. Every superficial inflammation spreads very much on the continuous surface of the skin; when this occurs, the first inflamed portion recovers, and the disease wanders to different parts of the body; but the original part may still be affected, although the disease has been extended to other portions of the skin: frequently it does not extend in this way, but dips down, and the cellular membrane beneath not only is filled with serum, but becomes actually inflamed. Thus matter may be collected, and you discover pustules, being small portions of *pus*; these will be sometimes formed, without an affection of the cellular membrane, the surface of the skin only being affected; the pustules also exist through the skin, deep in this membrane. Extensive inflammation sometimes attacks the cellular membrane, which has a tendency to induce suppuration; this affection is denominated erysipelas phlegmonoides, or "diffused inflammation of the cellular membrane." You have all the characters of inflammation—superficial inflammation, and inflammation of cellular membrane,—a complicated disease of at least two portions of inflammation. Mucous membranes are nearly allied in structure, and in other qualities, to the skin, and when inflamed, they

thicken, and increases in temperature, while great tenderness and pain, dull, and diffuse, frequently of a pricking sensation, are felt. Secretion increases in the commencement of inflammation, of a watery, thin, and sometimes of an acrid character, as in common catarrh. Should a cold commence in the Schneiderian membrane, there is a discharge from the nostrils. The secretion is not very excessive at first, and is of a thin consistence, more or less acrid. As the disease progresses, the running is suppressed, and as the affection is terminating, the secretion increases again, very copious, viscid, and sometimes offensive, and then diminishes again. The secretion remains mucous, if the inflammation be not intense; and yet it may undergo some alteration in quality, or be diseased. Should inflammation become intense, the secretion becomes puriform; and should the inflammation increase still higher, we have pus, a purulent running, as in the urethra, because inflammation is more intense there than in the nose. Inflammation of catarrh produces nothing more than mucus. Inflammation of severe gonorrhœa is so intense, as to cause pus. In very violent cases of gonorrhœa, fibrin is frequently discharged; so will the mucous membrane in croop, pour out fibrin, in consequence of the violence of the inflammatory action; this obstructs the parts, and a tube of fresh secretion is formed. I have seen strong injections in intense gonorrhœa excite violent inflammation in the urethra, and pus having been secreted previously but now fibrin, a portion of fibrin was discharged, similar to the earth-worm, but not in colour. Hæmorrhage occurs frequently in inflamed mucous membranes, and they become so overloaded with blood, that the vessels allow its escape, and a hæmorrhage occurs, particularly in the case of inflammation of the mucous membrane of the intestines, and urethra. They more frequently discharge blood when inflamed, than other mucous membranes. Sometimes (but it is not common) inflammation of mucous membranes induces mortification or sloughing, which is seen particularly in the throat and intestines; it frequently takes place in the beginning, and is disproportionate to the degree of inflammation. There always appears to be a strong disposition to ulceration. Inflammation of a mucous membrane frequently degenerates into a state of chronic discharge, and when the inflammation subsides, the part still pours forth a quantity of fluid, unaccompanied by heat or pain. This occurs when a mucous membrane has been inflamed many times; for instance, the discharge called gleet, from the bronchia and urethra; while the latter is perceived in young men,—the former in old. Hence we have “catarrhus senilis,”—a gleet, an incessant discharge from the mucous membrane of the air passages, and no inflammation. If these membranes are examined after death, and inflammation has occurred in life, they will be found thicker and softer than natural; and should the inflammation have been of long standing, they will sometimes become very soft and thin. On the contrary, the very reverse is discovered. Should the inflammation have induced softening, you may rub them off from the cellular membrane with the hand,—they sometimes be-

come indurated. When the mucous membrane of the stomach is soft, and you frequently find it so, this is no proof of inflammation having occurred; for I believe a part will become softened without inflammation; at least, softening is frequently entirely out of proportion to any inflammation that has existed. When a mucous membrane has been attacked with acute inflammation, you perceive it thicker and softer than natural. It is much more rare to find it hardened. The usual effects of acute inflammation is, a softening of the parts; but should chance cause a deposition of fibrin, although inflammation has a tendency to induce softening, yet the lymph thus deposited being hard, it causes an appearance of induration. DUPUY-TREN and DR. THOMPSON, Edin., found inflamed arteries softened; also the stomach, heart, and bronchia if inflamed, are found soft, consequently, this is the more general effect of acute inflammation of mucous membranes. If a mucous membrane has been intensely inflamed, you will perceive it quite black; congestion of blood will cause it to appear dark, similar to mortification; but should you touch it, you find it not lacerable like a mortified part, but pretty firm, solid, and without fœtor. When the intestines have been inflamed, portions will be seen as black as jet; yet they are not mortified, and but too frequently many have made the mistake in calling these cases mortification of the intestines; congestion of the mucous membrane will cause it to appear as black as the genital organs of rabbits, when in heat. DR. BAILLIE has pointed this out in his invaluable work on Morbid Anatomy. The feverishness, and pyrexia attendant on inflammation of a mucous membrane, it is generally remarked, is comparatively mild. The pulse is in general soft, although quick; and the more frequent of the inflammatory attacks in any mucous membrane, the more mild each attack is, and the more early and copious the discharge. If a serous membrane is inflamed, for instance, the arachnoid—the pleura—pericardium—peritoneum—or the tunica vaginalis,—the pain is very acute, darting, and lancinating; but the pulse is not soft, which is generally the case in inflammation of a mucous membrane; though it is sometimes hard. The inflammation of a serous membrane causes a copious effusion of serum, which is frequently limpid, clear, and of a lemon colour; generally it is turbid, except, probably, in inflammatory affections of the head. The serous matter is generally turbid, and yellowish, similar to whey, and frequently it is puriform. In many portions it resembles pus, and other portions may be like serum. Absolute pus is sometimes produced, and the pericardium has been seen filled with it. Serum is not only effused, but so is fibrin poured forth; sometimes it forms a jelly-like yellowish mass. You will see it with minute shreds, or flakes, floating about the fluid; and sometimes you will see it form regular layers, appearing similar to so much skin. They will grow at length vascular, and when so, they will adhere to the surrounding serous membrane; and at last they become thin again, and in every respect resemble the cellular membrane; so that they have been sometimes denominated “false membranes,” which means nothing more than an original effusion of lymph, which becoming vascular and adherent to the sur-

rounding serous membrane, from which it has been poured forth, and then it resembles cellular membrane; the effusion is no doubt fibrin: I never doubted it. MR. DOWLER, M. ANDRAL, and M. LASSAIGNE, agree with me in opinion, from the experiments they have made with regard to it. You will perceive in this deposition of fibrin, two portions,—a solid, and a fluid; the former is the fibrin itself; but between the portions of the solid mass,—between the layers, in cells, you discover a fluid, which is albumen; these depositions having become adherent, may be injected from the adjacent parts. And what I mentioned with respect to the coagulum of the blood takes place with respect to these depositions of the fibrin. They will, before they are adherent to the surrounding serous membrane, become vascular, vessels will form in them, and even pus has been discovered within them, while they were still unconnected with the adjacent parts. ANDRAL has seen a fibrinous concretion swimming in liquid unconnected with the surrounding parts, in a serous membrane, and frequently in such as these he has found pus. The circulation within these parts is of three kinds. When first formed, currents take place in the interstices, through the irregular areolæ; secondly, insulated vessels are discovered; thirdly, these vessels at last become continuous with those of the surrounding parts; and these stages may exist, according to ANDRAL, in the different parts of the same fibrin. If you open a serous membrane which has been inflamed, you will find on it points, or stars, or patches of vascular redness. In the first degree of inflammation there are merely points; if a greater degree of inflammation, then you have stars; if a still higher degree, and the various vessels contain blood, then you perceive a diffused redness.

CELLULAR MEMBRANE.

If the cellular membrane, or the substance of organs, as the liver, is inflamed, the pain is fixed, not diffused, which is the case in mucous membrane, the pain is rather acute, but not so much as in inflamed serous membrane. It is a little dull, and even pulsating or throbbing, and there is an effusion of serum into the parts around, when at length suppuration occurs in that spot where the inflammation is most intense. Should a tumour be formed it is hard, and when it suppurates of course it is soft; the pain remits, but generally in consequence of the collection of matter, keeps up the tension, keeps up the pain, and the other symptoms. The parts heal by granulation and cicatrization, after the escape of the matter.

VISCERA.

If the substance of the viscera, or any portion of the cellular membrane inflame, and form an abscess, it rarely terminates in gangrene, excepting a particular form, denominated "carbuncle." When the cellular membrane, or substance of the viscera becomes inflamed, it is called "phlegmon," and when it is near the surface, and possesses a tendency to produce gangrene, you call it no longer gangrene but carbuncle, in which the cellular membrane dies exten-

sively, so as to make it necessary that it should escape through a very large opening; thus surgical aid is required. Inflammation of the above parts is not always insulated but frequently diffused; this is denominated, if the skin is inflamed, "erysipelas plegmonoides;" or "diffused inflammation of the cellular membrane" when the skin is not inflamed. Sometimes inflammation is chronic, especially in inflammation of a mucous membrane; it is not so frequently chronic—though sometimes it is inflammation of the viscera, as is often seen in the lungs and liver, so that persons labour under chronic peripneumonia, and very often under chronic hæpatitis. The term fibrous membrane is applied to fascia aponeurosis tendons and their sheaths, ligaments, and perosteum, and when these are inflamed the common disease existing is denominated rheumatism; they may be inflamed without your having rheumatism, but if there is a general tendency towards inflammation in the whole body it is called rheumatism; frequently the inflammation of any one of them is the same affection. Although in rheumatism the pain is obtuse, yet there is a feeling of tension; and gelatinous exudations take place very similar to synovia. This form seldom runs on to suppuration, and very rarely to mortification. The pyrexia may be out of all proportion to the violence of the local inflammation, and, in fact, one symptom of the disease is the profuse sweating, which generally occurs; and, in acute rheumatism, you seldom perceive sweating absent at any period of the disease. It generally takes place at the commencement of the disease, and should the patient be kept warm, it is of so marked a character that you cannot mistake its nature, being usually very sour. This variety of inflammation either terminates in resolution or the chronic form, probably with a chronic collection of gelatinous matter in the theca of tendons, or about the joints. It frequently wanders, or as it is called "migrates;" consequently you perceive it in one joint, and in the course of a few hours you will perceive it in another; sometimes it is metastatic, it will cease in these particular parts, and inflammation will commence in some internal part, generally in some membrane, the arachnoid or the dura mater; more frequently than not it will be the pleura, or pericardium, the latter more commonly. It is not by metastasis only that this internal inflammation occurs, for you will very frequently perceive inflammation of the pericardium or the pleura take place in rheumatism, although the disease is existing in the joints as violently as before; and sometimes the internal inflammation does not occur until after the rheumatism has ended some time. When, for instance, the pericardium has been affected with inflammation, should the patient survive, the pericarditis has a great tendency to become chronic, and disease of the heart is set up; and the substance itself very frequently becomes hardened, or thickened, or softened; the internal membrane, principally about the valves, is affected; and you perceive all the symptoms of a diseased heart: thus organic disease of that organ is established. This is the common origin of diseased heart in young persons. Pericarditis is first set up, and this is usually connected with rheumatism. These are the principal varieties of inflammation, caused by structure. If the structure affected is a

serous membrane its sympathies induce a particular pulse, generally a hard one. When fibrous membranes are attacked, from another sympathy, you have a particular sweating; these are general sympathetic effects from a particular structure, and you will observe peculiar sympathetic effects from the organ itself, not to mention the structure. If the stomach and intestines are inflamed, a sensation is usually experienced of great weakness, with a wiry pulse, but this does not take place as the consequence of an inflammation of any of the peritoneal coat or any other coat of the intestines; for then it would take place when a similar structure was inflamed in other parts; but because the organ affected is the intestines or stomach. Should the kidney be affected with inflammation you perceive vomiting, a retraction of the testis of the same side, with many other symptoms, because the kidney is inflamed. Thus you observe certain sets of symptoms in inflammation, from the particular sympathy of the other organs with the affected part. Erysipelas of the head has a great tendency to run to the brain, which we can scarcely denominate metastasis, for the inflammation often continues violent in the face itself, when symptoms of phrenitis come on. Inflammation of the parotid glands, termed mumps, which being of a peculiar kind is asserted to be contagious, has a great disposition to excite sympathetic inflammation of the brain or of the testis. It is not unusual, when any organ continues inflamed for any length of time, for a distant organ to become inflamed also; which organs are, in general, either the brain, lungs, or alimentary canal; sometimes the skin and the throat. If a part has once been affected with inflammation slight causes will inflame it again; and frequently, when this second inflammation takes place, though very slight, yet it is attended by ill effects, for the constitution being impaired by the first attack of inflammation, the additional disease of another organ, though slight, produces great danger, and frequently death. Inflammation is sometimes intermittent, and sometimes absolutely periodical. Inflammation of the eye has been perceived to recur at particular intervals, also it has been observed to be intermittent, violent of an evening, and at a certain hour every other evening I have observed periodical catarrh. According as the constitution is healthy or unhealthy you will perceive varieties in inflammation; if it be healthy the inflammation is more active, more rapid, and when the terminations occur they are more perfect; if it be in an unhealthy condition the parts which are inflamed are feeble, there is less activity in the inflammation, and the colour is not so bright, the terminations are not so perfect, and the secretions of the whole part are more unhealthy. The term "specific" is applied to those causes which induce varieties in the symptoms of inflammation; for instance, inflammation of the skin, as in small-pox, is induced by a *specific* cause, Independent of its cause some inflammations run a peculiar course, such as erysipelas, and are therefore *specific*. Inflammation is said to be *passive* as well as *active*, the latter I have been considering. Should inflammation occur, with but little pain; should the redness be dull, and if the heat be but slightly increased, or probably not at all; should there appear more than the

usual swelling, and a very abundant secretion; the inflammation is said to be passive. Some object to this term, and ANDRAL, to obviate all difficulty, denominates all inflammations and congestions "hyperemy;"—the excessive presence of blood in the part. "Active hyperemy," is synonymous with active inflammation; whereas if the symptoms be those just described,—a dingy colour, flaccidity of the parts, little or no pain, then we should not call it passive inflammation, which ANDRAL considers absurd, "but passive hyperemy." The words *acute* and *chronic* apply merely to the duration of inflammation, and not to the difference, whether it be active or passive. If a person is weak before an attack of inflammation, or the part has been frequently affected, then the beginning of the inflammation may be of a passive nature, although acute. If inflammation has existed a length of time it may be still active; the affected part may be only hot and painful, and the state may yield, to the remedies applied to active inflammation. Consequently *active* and *passive*, with respect to inflammation, as with regard to all other diseases, are not synonymous with *acute* and *chronic*. The terms *tonic* and *atonic* do not refer to the active or passive state of the part, but to the powers of the system. You will sometimes observe inflammation distinguished by the terms *tonic* and *atonic*. Should the constitution be strong the inflammation is termed tonic; if the constitution be weak then it is denominated *atonic*, because inflammation is frequently very violent in a part, and yet there is no power; the activity is all of short duration, the powers are gone, and probably mortification occurs. The activity and violence of inflammation in a part are more than commensurate with the powers of the system; therefore if the part inflamed be in a state of activity, it is called active inflammation; but should the part be without activity it is denominated passive. If inflammation continues it will induce an enlargement of the parts, it will cause them to increase, to be too much nourished, and then it is called "hypertrophy,"—excessive nourishment. Contrariwise, it will cause them to waste, to want nourishment, and then it is termed "atrophy." It will cause the parts to be indurated, to be softened, and will give rise to various transformations, and a part may become very fine cartilage or actual bone. There are, sometimes, combined results of inflammation, so that a part shall be both hypertrophied, and atrophied, for should a part be compounded of different structures, one may increase, and become harder and thicker than previously; while another constituent of the same organ, shall waste away, and one part may become indurated, while another shall become softened; consequently, you will observe hypertrophy, and atrophy, induration, and softening, in different structures of the same compound organ. For instance, we sometimes perceive a thickening of the investing membrane of an organ, and a wasting of the organ itself; and you may perceive a thickening of the cellular membrane, while one of the other structures shall waste away. The retina is frequently observed in a state of atrophy, while the other portions of the eye are very thick or indurated to cartilage. Wasting follows acute inflammation more than chronic, except when the chronic

form induces such over nourishment of one constituent part of an organ, that another structure wastes. Acute inflammation is generally disposed to produce softening; and should any other alteration take place, it is rather that of atrophy. On the contrary, chronic inflammation causes the parts to become hard, hypertrophied, over nourished, and thickened, which causes transformations, and parts to become cartilage, or bone. These things may, or may not, arise without inflammation; when they are produced by inflammation, it is generally the chronic, and not the acute form which causes them. These are, then, changes with respect to size, and consistency in structures,—alterations to a new structure; and besides these, you will find a structure which exists in the body; parts which have been inflamed, will put on an entirely new character, thus forming a structure unknown to the healthy body. Should the alterations in structure be to bone, or cartilage, which exist naturally in the body, the formation is denominated “analogous,” or analogous to a structure of the body; but if the alteration in structure which is produced, does not exist naturally, then it is termed “non analogous.” In the fluids that are poured forth in inflammation, the same occurrences take place; serum, mucus, and fibrin, poured forth in an increased quantity, are analogous to those existing in the body naturally, but it is not the same with regard to pus, consequently it is *non* analogous. In the case of solids and fluids, the results of inflammation are therefore similar. These changes of size,—hypertrophy,—atrophy, of consistency,—induration, and softening, as also these transformations, the occurrence of hæmorrhage, of effusion, dropsy, a discharge from a mucous membrane,—gleet, and perhaps adhesion, ulceration, mortification, and some say suppuration, may occur without any inflammation; though generally they are the effect of inflammation. Hæmorrhage, although it is usually the result of active inflammation, frequently too in a mucous membrane; yet it is sometimes passive, that is, poured forth devoid of pain, heat, swelling, or general irritation; sometimes it is poured forth without any fulness perceived in the vessels of the part. I have examined persons who have died from hæmorrhage, and I have found no collection of blood in the parts which have afforded the hæmorrhage, and every other part from the head to the foot, was perfectly pale, and yet there was hæmorrhage from time to time, until death. It must have been poured forth from small vessels, for I could not discover any large vessels ruptured. Decidedly you will have chronic hydrothorax and ascites, without inflammation of the serous membrane, no pleuritis,—no peritonitis; and with regard to mucous membranes, you frequently perceive a gleet, without any symptom of inflammation. Some think that suppuration of the lungs will take place without inflammation, that where a single vomica of mere tubercular matter has been generated, and suppuration has occurred, there has frequently been no inflammation. Certainly large adhesions are always occurring in the pleura, in individuals who may not have been affected with inflammation within the chest. Sometimes portions of fibrin are expectorated from the bronchial tubes, without the slightest suspicion being entertained

previously, that there was any inflammation of those parts. Some think that ulceration occurs sometimes in the cartilages of the joints without inflammation; and it is certain, that ulceration will occasionally take place in the skin and throat, when there is scarcely any inflammation. Ulceration is observed in scurvy. Ulcerated, like softened mucous membranes, are quite pale. Mortification is continually occurring without inflammation, as may be seen in the lungs, and more rarely in the viscera. So it will take place in the extremities, in consequence of bad food, most frequently from that description denominated "ergot of rye."

LECTURE XI.

INFLAMMATION.—MORTIFICATION.

WHEN the principal vessel of a part is obstructed by a ligature, it will frequently produce mortification of the parts below, to which the ramifications of the blood vessels are distributed. With respect to spurred rye, or "ergot of rye," should an animal exist on this, you will sometimes observe a reddish fluid oozing from the nostrils, usually there is also violent pain in the extremities, and frequently heat and redness, actual inflammation, and lastly gangrene occur. Sometimes it does not cause heat and redness, but a withering of the part, which will become dry like a mummy; the parts thus affected become cold, dry, shrivelled and withered, frequently accompanied by diarrhoea, vertigo, convulsions and delirium. Also you have internal inflammation frequently in the alimentary canal; I need not declare this state is not contagious. It is now common in France, and at one period it was so in England, diseased wheat being the cause. The "ergot of maize," in Columbia, is said to act in a similar manner. It will cause the hair to come off, sometimes the teeth to drop out, and frequently causes sudden death. Animals are exceedingly partial to it, and will eat to excess, and die suddenly. Hens, in Columbia, that partook of the maize, discharged their eggs before the shell was formed; and it is presumed that in consequence of this, maize having caused hens to abort their eggs, has induced persons to employ it in the human subject, in order to cause speedy abortion. These properties are destroyed by cold, for when some of it was conveyed over cold mountains, it could be taken without injury. Mortification will occur, not from inflammation, but from ossification; some say of the larger and more distant arteries, but it certainly is believed, that mortification is induced by the ossification of minute arteries. CHRUVEILLIER, by artificially inducing a similarly obstructed state, produced the same effect, by injecting mercury into the arteries, so as to fill the capillary vessels; an obstruction was thus produced, and mortification was the result of the experiment. It is possible, when extreme congestion of blood occurs in parts, and continues for a length of time, that it might produce mortification in some measure, in consequence of the blood coagulating in the minute vessels. When mortification arises from an obstruction of minute vessels, caused by an ossification

of the minute arteries, it takes place more frequently in old voluptuous males; generally the gangrene is dry, the part shrivels up, and this condition is preceded by great pain. There are two varieties of dry gangrene, the pale and black. Many believe that mortification never takes place without inflammation, but I do not think this proved; for you perceive the severest mortification with the slightest, or not any inflammation; and on the other hand, you perceive the most intense inflammation without causing mortification. Yet some inflammations have a great tendency to mortification, such as glanders in the human being, which, though not more intense than several other inflammations of the face, yet has a great tendency to cause mortification. Induration is usually the result of slow inflammation, but softening, is continually observed without any signs of inflammation. Hypertrophy, similar to induration, is also generally the result of slow inflammation. Atrophy, or the wasting of a part, is frequently perceived without any inflammation. In phthisis, the heart is usually small, flabby, and probably shrivelled, though not previously inflamed. The transformations of one structure into another which is natural to the body, though not to the individual part, are decidedly more frequently the result of inflammation than not; but the new formations—those which are not analogous to anything already existing in the body, are frequently not the result of inflammation. Not a vestige of inflammation is to be seen during their production, and they rather appear changes of action, than the result of an actual inflammation. Thus the part is entirely altered, a new product formed; this is all, and it does not appear the result of inflammation. When inflammation accompanies those new products which are termed non-analogous, as for instance, encephaloid disease or cancer; it is but an accompaniment, not their cause. It may be the predisposing cause; for inflammation throws a part into a predisposition to disease, and then a fresh affection is induced. That these things are not the result of mere inflammation, is evident by the fact that ten times more inflammation occurs, without such effects being produced. If an inflammation goes on "*pari passu*," you still cannot say, that it is the result of inflammation, and in such affections you employ the most active antiphlogistic treatment perseveringly; yet you do not cure the disease, you scarcely control it, perhaps not at all. The morbid tendency to the morbid process is continued, and the disposition to it appear to excite inflammation, which is the consequence of the disposition to disease, not the disposition the result of the inflammation; for inflammation, in numerous instances, is the only ultimate effect. The new formations irritate the part so much, that inflammation is excited, and nature attempts to discharge the formation. Thus scirrhus has frequently been separated from the body by nature. Tubercles in the lungs being new formations, and not analogous to anything in the body, are not the result of mere inflammation; for you perceive inflammation arise without them, and you perceive them produced without the slightest inflammation. Sometimes persons disposed to this disease, will, when inflammation has caused an unhealthy condition of the lungs, have tubercles formed from that

period, for anything that throws the body out of health, gives a predisposition to disease of some sort, and should there be a predisposition it is increased, and the new affection is excited. Should a rabbit inhabit a damp place, with a deficiency of light and heat, and you feed it with unwholesome food, it may become the subject of tubercles, for a new depraved secretion occurs; but this is not the result of inflammation. Stimulants administered to an animal, may produce an inflammatory condition of the whole body, or of any organ, but it would not induce tubercles. I am pleased that my opinions (that every thing cannot be explained by inflammation) coincide with ANDRAL, who argues successfully against BROUSSAIS, that inflammation is not always the cause of tubercles, but that they occur frequently without inflammation, and when they take place as the consequence of inflammation, it is not certainly so much the result of inflammation, as it is of the unhealthy state of the part, and thus the patient easily becomes the victim of the predisposition to tubercle.

The first circumstance predisposing to inflammation, is a sanguineous temperament, and the next is high health. In the former there is generally a greater quantity of blood, or there is a large quantity in the minute vessels, consequently the pure blood itself circulates to a great extent throughout the body, which is quickly flushed. The vessels readily contain blood that should not contain it; thus the circulation is full, and rapid. The person has a florid colour with an increased quantity of blood circulating throughout the body, to a great extent. Besides this there may be a local sanguineous fulness, a local fulness of the blood, which may predispose a part to inflammation. There is a greater supply of blood in the face, than in any other part of the surface of the body, and when exanthematic affections occur,—for instance, measles, or small-pox, most of them affect the face sooner than any other part, and consequently the inflammation which takes place there, is much more severe; the same thing occurs from a particular time of life. In childhood the circulation is observed most vigorous in the head, in what is denominated *determination of blood to the head*, which means, simply, there is a greater proportion of blood circulating there, than in other parts; in youth the greatest determination is towards the chest; in the middle period of existence, and subsequently, the greatest determination is in the abdomen; consequently, children are peculiarly disposed to hydrocephalus, and to inflammation of the arachnoid membrane of the brain,—to cerebral complaints, and they are subjected continually to fits, and affections of the head; hence a great number of children die of acute diseases of the head. From this too, children particularly, have epistaxis. Persons in youth—those who have passed childhood, are more subject to the various affections of the chest, to all the thoracic inflammations, and to inflammatory spitting of blood. Adults are particularly liable to inflammation of the stomach and intestines, both acute and chronic, more especially chronic inflammation of the stomach and liver; also inflammation and congestions, and structural alterations of all the abdominal organs.

Seasons and climate, operate in the same way by exciting either

general, or local fulness. In cold climates, pulmonary inflammation likewise is more common in winter and spring, while in hot climates, and in the autumn in temperate climates, hepatic inflammation is most common. Sometimes previous injury to a part will increase the excitability, especially in the head, which will induce a person to suffer from a slight cause which he otherwise would not, had the injury not been received, for it would have scarcely disturbed him. I have seen a person who had a fracture of the skull, and for some years afterwards, he would be quite delirious if he partook of a glass of spirits. I also remember another man who was affected with rheumatism of different parts, and amongst others, the scalp; it is true, he had a fracture of the skull many years before, and the mere excitement of the external part of the head, would excite the internal part, which caused violent delirium from trifling rheumatism of the scalp. Previous inflammation from any cause disposes a part to be inflamed again. Many causes of an opposite tendency will have the same effect. Impure atmosphere, copious evacuations, bad food, or fatigue, depression of mind, fatigue of body, the frequent exhibition of mercury, an exhausting climate, or previous disease of any nature, will dispose to inflammation. The inflammation induced by the first kind of causes, is active, and tonic, whereas the inflammation induced by bad food, or bad air, and depression of mind, is either passive or atonic; that is, the inflammation itself is of a passive character, or there is a deficiency in the powers of the system to carry the inflammation on, to get the person well through it, or produce a healthy secretion of pus, if that be produced. Consequently inflammation varies according as the predisposing cause is one which affords strength, high health, and excitement, or one which destroys health, and strength, and gives a tendency only to an unhealthy excitement. Deficiencies in food—or heat, act as predisposing causes to inflammation, without producing debility or any atonic character of the inflammation. Should a part be exposed to cold, it is more affected afterwards by a given degree of heat, and if an individual be deprived of food, and a small quantity is given him of the weakest, it generally produces excitement, which strong food and in a large quantity would only have produced before, therefore some of these predisposing causes may also act, by rendering a part more disposed to be affected by stimulants, for the latter act according to the circumstance which went before them. According to the first, so is the second, consequently all that is requisite is, that there should be a great disproportion between the two. It is of no importance whether the first is very defective, or the second very great, because the effect is in proportion to their relative intensity. Thus parts having been exposed to cold, are violently inflamed when exposed to moderate heat; a person has been known to be delirious on taking a little veal broth, after he had been starved. These causes (many of them) produce however a cachectic condition of the constitution, and then inflammation if it takes place, is of a corresponding character. *Exciting causes*, induce first a local stimulus, mechanical or chemical, or what is properly termed a stimulus, independent of mechanical

qualities, such as alcohol. Beside local stimulants, whether mechanical, chemical, or true stimulants, the depression of stimulation in one part, will induce inflammation in another. If the circulation is depressed in the feet by a person being wet through his clothes, and sitting in wet shoes, there will be an increased activity at a distant part, so that inflammation may take place in the throat, chest, or eyes. This application of cold, depends greatly for its effect on the previous excitement. For should the feet for instance, have been previously hot, and in a state of perspiration, then the application of cold produces greater depression, that the inflammation of the throat or chest may be so much the more intense. Cold within certain limits is observed to be more injurious in producing distant inflammation, especially if it is partially applied. I believe that cold will directly induce inflammation, the same as great heat does. Cold will really induce similar appearances in the minute vessels, as heat, or absolute stimulants. It is very common to observe rheumatism in the shoulders, and an inflammatory pain in the ear, when cold air is blowing on these parts. Therefore cold will produce inflammation under these different circumstances, first, by rendering the body liable to be greatly excited by the stimuli which come subsequently, by depressing the action so much, as that when the stimuli is of increased temperature is applied, the effect is ten times increased. Secondly, it would appear to act, by depressing the action in one part, and thus exciting in another a corresponding excess of action. Thirdly, it would appear to act immediately, by exciting inflammation. We have instances of all these; a person going from a warm room to a cold one, causing coughing and catarrh—from wet feet; causing inflammation of the throat, eyes, mouth, nose, or chest,—from cold being applied to the ear, nose, or shoulders, which causes rheumatism, running at the nose, and inflammatory pain in the ear. Sudden refrigeration, and the sudden application of cold, after excitement, cause inflammation, more frequently than the application of heat after cold. The greater number of cases of inflammation are where persons have become suddenly cool; perhaps have got wet as well as suffered the application of merely cold air, when they were over heated and fatigued—rigor is induced, and a condition arises, which is quickly followed by inflammation. The effect of sudden refrigeration, is greater in proportion to the previous excitement—greater if partial, than general—greatest, if there be profuse perspiration, and exhaustion. Persons from taking ice when sweating, and exhausted, have paid the penalty of their incautiousness with their lives. However hot the body may be, if the person is not fatigued there is comparatively but little danger. The RUSSIANS proceed from the vapour bath, and wallow in the snow. The effect of cold when applied to the body, is greatly increased by damp, for many do not suffer from mere cold, but from dampness being allied to it. It may simply increase the cold by lowering the temperature of the body; but it injures to a greater extent, than this will explain, and out of proportion to the great diminution of temperature which the dampness causes. Many persons are not so strong in damp weather, and possibly it may act, by

conveying the electricity away in too large a quantity. We are active, and vigorous in dry weather. The effect of cold on the frame is greatly increased by sleep, because the powers of the body are lessened, the pulse is slower, the temperature is not so high, and noxious agents are less resisted, consequently we frequently hear it said "that if a person goes to sleep in a draft he is sure to catch cold," but if he keeps awake he may escape it. Cold is more injurious if applied to the back, than to the front of the body, because I suppose there is less power. People will escape if a draft strikes them in front, but if it strike them to the back of the head, or neck, they will frequently suffer. Inflammation is frequently excited by *sympathy*. When one eye is inflamed, the other without any external cause may inflame also; and it is common if the head is inflamed in an infant, for the abdomen to be inflamed, either in the intestines, or liver, and the converse. This is important, for you may be treating one inflammation only, when perhaps there are two existing. If you are asked the nature of such a case, you would be justified in stating it "complicated," there is inflammation in two parts. *Metastasis* is also another mode in which inflammation takes place. When inflammation of the parotid gland sends in mumps, the brain will inflame, or more commonly a testicle, or both testicles; which frequently present an illustration of atrophy, as the result of inflammation. It is common for a testicle to waste away when inflamed after mumps, so that nothing will remain but the membranes. In gout metastatic inflammation takes place; for when gout terminates suddenly, it is quite common for inflammation of an apoplectic character to occur in the head, or in the stomach or intestines. Sometimes you will have inflammation occasioned, by the introduction into the circulation of an unhealthy or acrid matter; should it be pus, or any diseased secretion absorbed, it is very common to discover a deposition at a distance from that part in which it was originally collected. Thus you will have at a distance a deposition of pus, or lymph in the various viscera, in the cellular membrane, and even in the secreting cavities, or inflammation and disorganization without deposition. Perhaps inflammation of the veins occurs, and probably the pus collected in them, causes such an inflammation in distant parts, that pus, lymph, and other things are produced, and you have a sallow hue of the countenance, with debility, and great irritation. Some say, that the *predisposing* causes to disease, will frequently become *exciting*, in consequence of their mere continuance, and increase, so that no exciting cause is required; which may be the case with respect to fulness of blood. For example, a part may become gradually affected with congestion, or determination of blood, which may increase, until at length, inflammation takes place, or a state of apoplexy; and if it be in the head, it may be produced without any actual exciting cause. But in specific inflammation, this cannot be the case; for all the predisposition imaginable, would not give a person small pox, unless the exciting cause were applied. A *proximate cause* is that, which is essential to the existence of the disease—the actual condition of the parts in inflammation. I think that in inflam-

mation blood is discovered in vessels which are not designed to contain it,—that it enters vessels which in a healthy state, contain no blood, and those vessels which contain blood naturally, become enlarged in consequence of an increase of blood in them, thus containing more blood than they ought. HUNTER to prove this says, “I froze the ear of a rabbit, and thawed it again; this excited a considerable inflammation, and increased heat, and a considerable thickening of that part. The rabbit being killed, the ear appeared in the height of inflammation, and the head being injected, the two ears were removed and dried. The uninflamed ear dried clear and transparent,—the vessels were seen distinctly, ramifying through the substance; but the inflamed ear dried thicker, and more opaque, and its arteries were considerably larger.” That blood vessels possess a contractile power is observed, both in the large vessels and in the capillaries. I am not aware how the action of the capillaries, or the arteries contribute to the circulation in health, but it may alter the circulation according to the larger or smaller size of the vessels, as they are constricted, or dilated; so that there may be more or less blood in the part itself, and those parts to which the vessels lead, I refer you to my edition of Blumenbach’s Physiology for further information on this point. Now, as it is certain that arteries and capillaries have the power just mentioned, I cannot conceive that this increased action is compatible with increased redness and fulness in inflammation, that the vessels can be more constricted and yet more dilated than previously; for if they were redder at one instant then they would be paler at another, thus counterbalancing each other. It appears there, is a diminished motion of the blood in inflamed vessels—a retardation of the motion, commensurate with inflammation, which has been observed by VACCA, BICHAT, LUBBOCK, ALLEN, PHILLIP and HASTINGS, the latter under the microscope—by GENDRIN, who has recently confirmed the opinions of PHILLIP and HASTINGS. The latter applied mechanical violence, heat, cold and ammonia; and at first they saw, by the microscope, that the blood moved more rapidly; there appeared an increased velocity and a contraction, with a paleness of the vessels; which was to be expected, from what is termed “increased action.” After the increased action, and the contraction of the vessels, the motion became slower, the blood became retarded in its course; the vessels became dilated, and inflammation appeared. When a part was inflamed, and a stimulus applied, it had an immediate effect in quickening the circulation of the blood, and constricting the vessels, and the inflammation ceased. If a stimulus was violently applied, so as to produce most violent action and very great rapidity, of course this lasted a shorter time; and the second stage, that of slow dilatation of the vessels and inflammation, came on sooner. If the stimulus was applied very violently, the second stage was induced immediately. These gentlemen, however, stated, that the oil of turpentine differed from every other stimuli, in causing only the *first* stage; it was not followed by the *second*, and, if applied to the second, it generally removed it, while common salt caused instant dilatation—induced instantly the second stage. One would not have expected that cold

would have the same effect as stimuli, but it was seen to be the case. Every person is aware, that if the parts are cold they become reddish, which is perceived in the nose and cheeks in winter, they grow dark, then more and more red, until they become of the mulberry colour; and probably such congestion occurs that gangrene may take place. GENDRIN has confirmed the opinions of HASTINGS. But you will find that Dr. THOMSON has objected to the results of the experiments of GENDRIN in his work on Inflammation, but I think his objections are fully answered by Dr. HASTINGS. Dr. THOMSON says, that you have in inflammation increased action and motion. Dr. HASTINGS answers, that Dr. T. himself, in some cases of inflammation, saw a slower motion, and that he speaks of seeing red globules in the parts where the blood was in rapid motion; and he must have made a mistake, because, in the blood of parts inflamed red globules are not seen at all, because they are mingled together, or broken down; consequently Dr. HASTINGS concludes that the cases in which Dr. THOMSON saw rapid motion there could not have been inflammation, but that he perceived that state which precedes inflammation.

The large vessels, going to an inflamed part, are usually felt to throb. For instance, should there be a whitlow on the finger, the digital artery behind throbs violently; and in inflammation of the face the angular artery may be felt to throb also—and in case of head-ache the temporal artery does the same. But this is no proof of increased action in them, for the same takes place in an aneurism or a dilated artery; and where the latter is dilated, though weakened, softened, and unable to act, as it did before, you will find it throb violently, simply on account of its increased capacity. However, in that kind of passive inflammation, this enlargement of the surrounding vessels is wanting, consequently you do not have this throbbing of the large vessels. In the height of inflammation the open extremities of vessels are assuredly affected with spasm, and they will not pour forth fluid as they did before. When a mucous membrane is inflamed its secretion ceases, so will the secretions of an inflamed part at the very height of inflammation, or at least they are greatly diminished, so that one must suppose there is a spasmodic and constricted state. The word spasmodic may probably be objectionable, but a constricted state of the extremities of secreting vessels appears to exist in inflammation. Far more changes than these occur. Sometimes floculi are seen in the blood, which are not visible in the immediately surrounding capillaries. When mortification takes place in a part then the blood around is yellow, its various constituents separate, and it is evidently in a state of disease. "Ratio symptomatum." "Redness" is explained by the existence of blood in vessels not designed to contain it, and the excess in those which should contain it. "Swelling" is from the same circumstances, and from an increased secretion going on around. "Pain" is from fulness, from tension of all the parts, which is produced by an accumulation of blood, and by an excessive secretion around it. It will also arise, perhaps from an increased degree of sensibility. In all cases there is pain from tension and fulness, but the pain is far more severe on account of the morbid sensibility. "Heat"

arises from an increased momentum of blood in the parts, the increased quantity of which is still circulating. Should the same quantity be in a part, and motionless, of course the part would grow cold, but as the blood which is in it, is in excess, and it still moves on, so as to come round to the lungs, a greater number of changes, giving rise to heat, must take place; and as heat appears to be connected with the existence of blood circulating, coming round to the lungs, and undergoing chemical alterations, in proportion to the quantity of the blood circulating, there must be an increase of temperature. Should the blood cease to circulate, or become languid, and no chemical changes occur, then of course the part becomes cold: momentum is composed of rapidity and quantity, the former is decreased but the latter much increased, consequently on the whole momentum is much increased.

LECTURE XII.

INFLAMMATION, DIAGNOSIS, PROGNOSIS, TEMPERATURE, FOOD, BLOOD-LETTING, POSITION, PURGING, SUDORIFICS, DIAPHORETICS, CONTRASTIMULANTS, DIGITALIS, COLCHICUM, ANTIMONY.

If you have to make a diagnosis during life, of inflammation in a part which cannot be seen, you must found your judgment on something else, than if the inflammation was visible. Should an invisible part be inflamed, you will find the pain increased on sudden pressure, and frequently on the most gradual pressure; and there is generally more or less pyrexia or feverishness, or as some term it, "symptomatic" fever. The pain is usually throbbing, and frequently there is weight and tension, but although a part may be inflamed, gradual pressure may be borne, and on the contrary, a very slight pressure, or a brush of the hand over the surface, may cause pain, although there may be no inflammation. For instance, in neuralgia or in tic douloureux, the smallest touch will inflict exquisite pain; this is not the case where there is inflammation, for such a slight pressure will not produce such an agonizing pain, it is only in inflammation of the skin, and that is visible. If you are in doubt, notwithstanding the pain caused by pressure, and there is pyrexia, if the patients will permit you, always treat it as a case of inflammation, and you will generally find that the blood drawn away entirely justifies your course. You will frequently find it bled or cupped, or both, especially if there be inflammation. The age and constitution of the patient are always to be considered, when giving your prognosis, and on the other hand, the violence of the disease, the degree of disposition to the same, and its seat. The danger of the affection depends on the power the patient possesses to go through with it, or his age and general condition of his constitution; and on the other hand, it depends not only on the intensity of the disease, and its liability to increase, but on its seat. A violent inflammation in an extremity may not be half so dangerous as one less violent in certain viscera. Idiosyncrasy, ac-

quired or natural, must be observed. I mentioned the case of rheumatism of the scalp, which induced a state of frenzy. There was no danger in this, and it gave way to the necessary treatment of rheumatism of the head; but had there not been this idiosyncrasy, we might have feared inflammation of the brain of a dangerous nature. When, therefore, you are attending a patient for any complaint, if he be nervous, you will find such a depression of the system, quickness of pulse, and disturbance of the constitution as, had you not known the patient *previously*, would have startled you. In the *treatment* of active inflammation, you must first lessen the ordinary stimuli to which the body is subjected, externally and internally. Excessive action, or very great activity and excitement, is going on, consequently it is our province to lessen all the stimuli which induce the activity; if external, it may be diminished by exclusion. High *temperature* must be excluded, and you procure a moderate temperature, that the stimulus may act as little as possible, but you must not permit the temperature to fall too low, because you chill the patient when suffering from inflammation, you cause great discomfort, and you increase the affection. Should you diminish the circulation in healthy parts too much, you may increase the activity in those inflamed, consequently, in reducing the temperature around a person, you should moderate it, so as to make it comfortable to him. With regard to the *inflamed* part, of course the temperature in it is too high. *Cold* may be applied by means of plain water, which should be continually renewed. But we can procure a lower degree of temperature, if we employ fluids which evaporate more quickly than water. Real ice placed in a bladder *half full*, and laid on the head after it has been shaved, or on the front of the chest, or on any other part of the surface, is frequently used for this purpose. A bladder being full, will not accommodate itself well to the part, but when half filled, it presses down in apposition with it. In inflammation of the chest, cold is not applied externally, it is only in cases of hæmorrhage that we use it. If it is the surface which is inflamed, it is not proper to apply ice in this way, but you should apply plain water, iced water, or evaporating lotions. A bladder half filled with ice, is the best remedy you can have recourse to in *internal* inflammation of the head, or hæmorrhage from the lungs. In certain inflammatory pains of the head, the application of a stream of cold water, by means of a tube, has relieved them, when every other remedy had been employed without success. An opposite treatment is frequently beneficial; for if you employ warmth and moisture together, you produce as good an effect, as you do when you apply cold. The reason is this: the application of cold lessens the stimulus—the heat of the part—the quantity of the blood in all the vessels, consequently you lessen the tension. And if you apply warmth and moisture, you cause a relaxation of the part inflamed, you soften the solids, so that the tension is removed. I think that cold lessens the stretching cause,—the moisture permits the part to stretch easily, to give way to distending fluids. Probably the warmth and moisture applied to the surface, may relax the ends of vessels, and ease the parts by causing a free perspiration. I have

suffered violent external inflammation, and on part of the day I have experienced much relief from iced water, or a constant stream applied, and when that ceased to relieve me, but caused pain, then I have resorted to warm water and flannels, and have found great comfort from them. If you know that the part affected is one greatly influenced by other surrounding stimuli, as for instance, the head, you should also exclude light, noise, or conversation, thus keeping him in as great freedom from stimuli. But little food should be given your patient, and that of the most inert kind, starve him without his knowledge; plain water is best in many inflammatory complaints, but you should permit toast and water and barley water, of which in consequence of thirst a great deal will be required, it should be cold, unless the patient desire it warm, mixed with a little acid, which renders the drinks much more palatable. For a saline draught to be productive of benefit to the patient, he should take a pint in the course of twenty-four hours. The great remedy in this disease is loss of blood; for you must remove the *internal* stimuli as well as the *external*. The great internal stimulus is the blood. It is of little importance where you draw it, but it is good practice to make a large orifice in the vein, and make the patient sit, so that he may faint quickly; for if the blood is drawn with great rapidity, it is much more efficacious, than if it be drawn slowly; thus a large orifice and the sitting posture are best. If we sit or stand, the blood finds more difficulty in returning to the heart, and escapes from it more easily, consequently these positions cause fainting much sooner than the recumbent posture. If our object is to spare blood very much, and yet make as great an impression as possible, open *two* veins at once, one in each arm; and make the patient stand, when the loss of a very few ounces will cause fainting. You should not consider the *quantity* in taking blood away, but the *effect*: do everything to produce an effect, and go on until the pulse sinks, or until the patient says he feels better, or an improvement takes place. When any of these circumstances occur, it is best to stop the bleeding, especially if the patient become weak, lest depression become too violent. Should the faintness go off, the pulse no better, or if when he has not fainted, but there is an improvement in the pulse, the pulse falls back into its former state, or if there has been no faintness, no improvement in the pulse, but great improvement in the feelings of the patient, a great diminution of the disease, and pain returns, then in any of these circumstances, you should let the blood flow again.

Frequently you will discover on bleeding, that the pulse so far from diminishing, increases in volume, so far from becoming slower, will become quicker, and yet retain its firmness. This may indicate very great improvement; there are some diseases in which the pulse is oppressed, in which it may be large and firm enough, but appears to have little activity in it; it is not a fluttering pulse, but it moves heavily. In what we term an oppressed pulse there is plenty of volume, of firmness, but very little impetus, as occurs frequently in diseases of the head; it is sometimes very slow, but not necessarily so: the pulse may be oppressed, and yet not slow, or there

may be a morbid slowness, and yet the pulse may not be oppressed; yet on bleeding in one or the other, the pulse will rise; it will be sharper, and quicker, or both; and you may consider this as much an improvement as diminished force, and frequency in other instances, and I would arrest the flow of blood in both cases. I should then wait to observe if things fell back; and if the pulse became slower, or heavier, but still having sufficient volume, I should bleed again. The repetition of blood-letting after an interval of some hours, or a day, must depend on the same circumstances. If the pulse becomes quicker, or fuller again, or the symptoms should become worse, then you should follow the same course which you did at the commencement of the bleeding. There is generally more difficulty in making a patient faint in violent inflammation, than when there is very little the matter with the person; and I believe that a degree of bleeding will not cause faintness, which in health, would produce syncope. Should a person be very plethoric, and it is necessary to draw a quantity of blood; and if you suppose you will only suspend the disease, without a copious depletion, and that the symptoms may return because of the fulness of the system; or should it occur that the patient is very nervous, and disposed to faint; in either of these cases you should endeavour to prevent syncope, before you have drawn the quantity you consider necessary; therefore you should bleed from a small instead of a large orifice, and the patient should lie down instead of sitting up. Women are liable to faint after you have drawn a few ounces away, or before you have withdrawn sufficient to make an impression on the disease: you should then apply a smelling bottle. If you expect nervous fainting, instead of syncope from absolute loss of blood, more from emotions of the mind, than from abstraction of blood, you must make a very small orifice, and place the patient in a recumbent posture, so that you may carry depletion to such an extent, as to make an impression on the system. Should fainting take place when you have drawn only one or two ounces of blood away, in such a case you are disappointed, and are compelled to cup, or apply leeches for days, when you could have cured the patient in twenty-four hours; consequently in cases where it is necessary to prevent syncope, you must use the smelling-bottle, a recumbent posture, and make a small orifice; while in other cases, this would be highly injurious. If a patient faints in ordinary bleeding, you should stop the blood, and lay him down to prevent excessive faintness. Although a quick, full, firm, wiry or jerking pulse, may justify bleeding, with the symptoms of inflammation, yet the absence of any of these states of the pulse, will not forbid bleeding, should the *symptoms* demand it. Should there be no very excessive debility of the pulse; or feebleness of the constitution,—if there be neither tender age, nor extreme old age, to forbid free bleeding, you may bleed, notwithstanding the pulse affords you no such indication; for the pulse may not indicate bleeding, but it may justify it. The pulse has been called by CÆLUS “*res fallacissima*”—the most fallacious of all symptoms. It will give you very important information, but should there be a sufficiency of other symptoms to indi-

cate the character of the case, to shew that the patient is labouring under an inflammatory affection, though the pulse would not lead you to such a conclusion, you must treat the case in spite of the pulse; if the pulse does not indicate such a state of debility as would render bleeding improper, or the constitution, or age of the person forbid it. In dangerous cases of peritonitis when the patient was compelled to lie on his back, with his body, and even his thighs raised, so as to relax the peritoneum as much as possible, and where the abdomen could scarcely bear the weight of the bed clothes, I have felt the pulse scarcely different in volume, or force, from a state of health. Although the peritoneum is a serous membrane, I have known the pulse without any great firmness, or wiryness, or the jerking state, and without any thing that would induce you to suppose disease in this investing membrane. You may constantly see women in a pregnant state, with the pulse small; such a pulse as would forbid you bleeding, unless there were other symptoms; but on pressing the part affected, you will find bleeding indicated; and should you attend to the countenance, you perceive bleeding can be borne. In the cases of peritonitis just now referred to, I have seen the blood buffed, and cupped, and after forty to fifty or sixty ounces have been drawn, the patients have speedily recovered. Every symptom therefore is important; but every one has also its relative value. However local the inflammation, however remote from the heart, if it take place in the testicle, or in the finger, in paronchia or whitloë, you will find that venesection is decidedly more powerful in creating a quick impression on the disease, than any *local* bleeding. And venesection in the arm is just as beneficial as arteriotomy, in cases of affection of the head. Your great object is to get as large a quantity of blood in acute disease, in as short a time as possible from the system; therefore, I believe that venesection in the arm will answer every purpose; at least, I do not prefer opening an artery in case of inflammation of the head, or eye. I have never had an occasion to draw away more than thirty ounces of blood at one depletion, except in one case, in which forty were required to induce syncope; and in acute complaints, I do not remember ever having drawn away more than eighty ounces altogether. In chronic affections I have, of course, taken away many hundreds of ounces, going on with small bleeding for weeks, or months. Some have taken away in acute diseases an immense quantity in a short time. In inflammation of the lungs, 150 ounces of blood have been drawn away in a few days. The justly celebrated Dr. BLUNDELL, in the *Medico-Chirurgical Transactions*, vol. xii. states, that Mr. HENSLEY, in two cases of inflammation of the lungs, in men, has taken away a gallon and a half of blood, in five days, and they both recovered. Dr. BADELEY asserts, that he has taken away five quarts in five days with success, in a case of peripneumonia. Thus in obstinate cases, you perceive there are authorities for excessive bleeding. I do not condemn such practice, but from my treatment, I have never had occasion to resort to such profuse evacuations. Among the effects of bleeding, in reference to the buffed and cupped state of the blood, Drs. PREVOST and

DUMAS, of Geneva, from their experiments state, that after blood-letting, the red particles are found after a certain interval, to be fewer in number; there is a change, not only in the disappearance of the buffiness, but venesection lessens the number of red particles. If blood is drawn away from a person not unhealthy, or in health, its effect is to impoverish it. Therefore in blood-letting, you lessen its stimulating qualities, by diminishing the mass of the blood,—lower its quality, while you diminish its quantity. Should you not be able to open a vein in excessively violent inflammation, I would certainly open an artery. I believe it is generally safe to open a temporal artery; instead of cupping or leeches, in extremely dangerous cases. Some have opened the radial artery; but the temporal artery affords generally, as great a quantity of blood as is required. "Local" bleeding is sometimes necessary, and is usually employed in proportion to the less violence of the general symptoms, in proportion to the smaller powers of the patient, and in proportion to the existence of mere congestion of blood, rather than inflammation. Should you find the general state of the person's system not much disturbed; if there is no great excitement, or fulness of the pulse, or if you find the patient very weak, and a great accumulation of blood, rather than inflammation, or should the inflammation be rather of a passive, or atonic character, then according to that proportion, local bleeding is generally preferable to general bleeding. In many cases general bleeding will be found to answer the same purpose as local, and I would advise you never to allow cupping and leeches to stand in the way of general blood-letting. Even if a patient be weak, set him upright in bed, or induce him to stand upright, and from a large orifice, draw four or five ounces of blood; which will produce a greater effect than applying leeches, which may drain away perhaps a larger quantity of vital fluid. I am confident, that general bleeding is constantly omitted, when it might be employed advantageously, and it would give you much less trouble and produce a much more decided effect. Local bleeding is frequently of great use, immediately after general blood-letting; you may decrease the load of blood in the part greatly by applying a large number of leeches, or cupping, which is good practice. Symptoms I think disappear more speedily, if, after having made a great impression on the system, and decreasing the force of the blood sent to the part, I lessen the quantity of blood in the part by adopting local bleeding; and local bleeding may be employed to produce general effects, for if it is carried very far you perceive the patient become debilitated, and bloodless, which is seen in a child during the operation of leeches; it will become exceedingly faint. Local bleeding will produce these general effects; but it is generally a slow process, and the effects of local bleeding are frequently very local. In pain of the head I have seen leeches applied to one temple, which has been relieved, while the pain continued in the other; and often I have seen the occiput cupped, and relief obtained there; while the front of the head has remained as painful as before, and when leeches have been applied to the front of the head the occiput has continued painful; but this is not always the

case. I do not contend against local bleeding, because I employ it extensively ; all I wish to intimate is, that it should never *supersede* general bleeding, if general bleeding be necessary. You must remember that I have been speaking of active inflammation. Local bleeding will sometimes succeed best at a distance. I have known inflammatory chronic diseases of the head, which had resisted general bleeding, and local bleeding, at or in the neighbourhood of the head, give way to cupping of the hypochondria, or the application of leeches to the anus. Some practitioners think highly of bleeding in the foot. The operation of distant local bleeding is called “revulsion.” *Position* will diminish, as well as increase the quantity of blood in a part; and it would be very improper practice, if you failed to change the position when by so doing, you could relieve the pain. Should a patient have inflammation of the foot, or hand, it would be absurd to allow the foot to hang down, or the hand to remain without a sling. It is frequently of great use, to allow the foot not merely to be on a level with the body, but it should be a little raised; so also should the hand. In inflammation of the head you should cause it to be raised. By attending to these things, although you are not curing your patient, you will enable other things to cure him sooner, and prevent other things from being counteracted. *Purging* next to blood-letting, in the way of evacuation, (although inferior to it) is highly beneficial, and extremely necessary. First you remove from the body a quantity of irritating matter, of feces, which are almost always diseased, and if allowed to remain would, in all probability, become putrid. You are also sure to find the secretions diseased, consequently, in removing the remains of food, you at the same time remove those diseased secretions which would be more or less poisonous, or at least irritating. You also produce an evacuation of the liquids from the vessels of the body, and likewise cause a counter irritation in a part distant from the inflammation; you thus do more or less good. In inflammation of the head, chest, and various parts of the body, you find the intestines disposed to become torpid; the excitement caused by the inflammation induces a depression of excitement in them; and should you increase the excitement, and bring them into full action, in a proportionate manner you tend to lessen the distant inflammation. However, it is not proper to administer very stimulating purgatives; you might go too far, and increase the general excitement. You should always give those things which thoroughly empty the intestines, and after to exhibit such which produce a considerable drain; and you ought always to select those medicines which cause the least irritation, while they effect the object you have in view. You must not suppose, that because you produce diseased stools, you are to go on purging; for there is little doubt that purgatives, if acrid, will cause diseased secretion. For if a healthy person take an acrid purgative, his feces do not exhibit the healthy character they did prior to the taking of the purgative. There can be no doubt that acrid purgatives will disorder the secretions, and produce fetid discharges, which would not otherwise occur. It is not necessary that a person should

have diseased secretions in inflammation, and other diseases, before you give purgatives; it is doubtless not always the case; and you should recollect that purgatives will have this effect; and after some time, when the *æces* would assume their natural appearance; an unnatural state can always be produced by the use of purgatives. The repetition of purgatives, or bleeding, must be entirely regulated by the intensity of the disease, on the one hand, and the patient's strength on the other. With respect to other evacuants, I do not think much of them. Venesection and purging are by far the most important.

SUDORIFICS

Are of inferior use; and for the most part, if you leave the skin alone, and actively treat the complaint with other remedies, the skin will resume its healthy function, and the person will perspire. I seldom take any trouble with the skin, by giving sudorifics, or diaphoretics; for by bleeding well, and starving the patient, excluding stimuli, and the application of certain remedies, you may usually neglect the skin and urine; the latter in inflammatory affections will come round without any direct means, so will the former when the disease is actively treated. If you administer stimulating sudorifics, you may do much injury. Antimony is usually exhibited in inflammatory affections, in order to produce a moderate diaphoresis; you may just as well not give it at all. A few drops of antimonial wine in a saline draught cannot do much good in severe inflammation; for the power of this medicine is trifling in small doses. I have seen two or three drachms given every three hours, to shew how it could be borne, without producing any sensible effect whatever. Combat the disease well with local and general bleeding, and purging, and omit the small doses. I never think of them in the cure of inflammation. There is another plan which you may follow in the treatment of this disease. I mean the exhibition of "counter-irritants," or, as they are denominated, "contra-stimulants," so as to produce a strong impression on the system. The most important of these are colchicum, digitalis, and antimony, in very large doses, and mercury. In very violent inflammation, and in violent morbid states of the body, all remedial agents are opposed. You may administer in fever—in inflammation—in insanity—in spasm—larger doses of medicine than you could give in health. Some assert, that in inflammation they have exhibited an ounce of tinct. digitalis in twenty-four hours. I never did; no, nor a scruple, or half a drachm of the powder, in the stated time. However, you may give in this disease, a larger quantity than you could administer in health: this is quite certain; and as a general rule, all agents are resisted. This is the case with mercury, a quantity of which given to the same person in a state of health, would induce violent ptyalism, and cause the teeth to fall out. You perceive that in violent inflammation, the effect of bleeding on the heart is resisted, the system is in a new state, and many things will not produce that effect, which they would, if it were in its natural condition.

DIGITALIS, COLCHICUM, ANTIMONY.

Of the use of digitalis in inflammatory affections, I have but little knowledge: some assert they can cure with it, without venesection, but I really hate digitalis. I have known so many patients die suddenly that have taken it, that whether they die or not after taking it, it is a medicine of which I have very great horror; and knowing the effects of bleeding, together with other remedies, I have not used it in any quantity sufficient to control the circulation. I have exhibited it in the dose of a scruple, or half a drachm of the tincture, three or four times a day, but never saw it beneficial in inflammation. Colchicum has extraordinary powers in active rheumatism and gout. There is no doubt that so strong an anti-inflammatory remedy as colchicum is, that it will cause sweating, purging, vomiting, and nausea, and that it has a great tendency to reduce inflammation. But I do not trust much to it, except in gout and rheumatism, for its utility has not appeared so decisive, as to induce me to give it in preference to mercury. You may give antimony in very large doses. It is many years ago since I discovered pulvis antimonialis to be in general, a very inert thing. I have known some give two to three grains, three or four times a day, or five grain doses at night with plenty of gruel, to cause perspiration, and to bathe their feet in hot water, with plenty of clothes on the bed, and if they have sweated very much, it has all been in consequence of the exhibition of the antimony. Perceiving these things, I doubted its efficacy; but I went on giving a drachm, or a drachm and a half, and even two drachms, three times in the course of a day. I was convinced its inertness could not arise from the remedy being resisted, and I therefore gave it to persons having the itch. It is proper when a person is rubbing in sulphur, to give something internally, in order that his wishes for the purification of his blood should be gratified. In the cases I have spoken of, I gave antimony without producing any effect: I have prescribed 130 grains three times a day, without causing nausea; it is a most uncertain remedy, it contains a great deal of phosphate of lime and peroxide of antimony, and sometimes it contains nothing else. If you give it with calomel, you may sometimes produce nausea. Pulv. Antimon. *as it ought to be*, I will not say is an inert remedy. The antimonium tartarizatum, let it be ever so genuine, may be given in large quantities. I have known men, in St. Thomas's Hospital, take half-ounce doses of antimonial wine in chronic bronchitis, every four hours, without its producing nausea or anything else. When they first took it, they said it made them sick, but they did not feel so afterwards; some give twenty grains of tartar emetic in twenty-four hours, and in inflammatory affections I have given two grains every two hours, which has induced nausea or vomiting at first, but not afterwards; and after a period of a fortnight, the patients will probably be sick again. I have no doubt you may sometimes save a patient's life by the nausea, but you will not save so many as you should try to do; nor do I think that colchicum, or digitalis, should be depended on like mercury;—I am not content without great success in inflammation, because if we have fair play, we ought generally to cure it.

LECTURE XIII.

TREATMENT OF INFLAMMATION.

IN my last lecture I omitted to state, that when the surface is abraded, or when a mucous membrane is inflamed, such as the interior of the mouth, or the conjunctiva of the eyes, which is similar to a mucous membrane, that to combine a small portion of the superacetate of lead with the cold, but not sufficient to irritate the part, is generally of great service. Should the surface, however, be not abraded, the employment of lead, I think, is not more efficacious than cold water, or an evaporating lotion. With regard to local bleeding, ancient writers supposed that the blood would instantly rush from the inflamed part to that from which the blood was drawn. In this country the circumstance has been too much neglected, for I have had cases of inflammation of the head, where repeated local bleedings, till the patient became pale, were of no use; but on drawing blood from the sides of the trunk, far from the head, and the relief of the patients was perfect, and they got well. There is no doubt that leeches, applied to the anus, will cause the most decided relief in affections of the head, and even the heart. On the continent this treatment is commonly resorted to, but from delicacy it is not much practised here. If the head or stomach are affected, it is frequently proper to take blood from the anus, for the veins there go to form the vena portæ; consequently a great load is taken from the liver and the whole venous system, and less blood goes to the heart. As the hæmorrhoidal veins run to assist in forming the vena portæ, and this branches through the hepatic veins to the vena cava inferior, far greater relief is obtained in affections of the heart, and within the chest, as well as great congestion within the head, by these means than any other. I do not know that the removal of blood from the anus, is decidedly preferable, or whether the same quantity of blood taken from other parts would not be as beneficial. But certainly I have been surprised, frequently, in complaints of the head, on perceiving the benefit that is derived from drawing blood from around the abdomen and from the anus.

ANTIMONY.—MERCURY.—OPIUM.

Antimony is generally very inefficient when compared to mercury. It must be administered, like digitalis, in large quantities to effect much benefit. That form of antimony which you should employ is the *antim. tartarizatum*. Should you give pulvis antimonialis, and find it inert, you are not to suppose that the cause is strong action going on in the system, and which does continually counteract *all* agents. In violent pain of tetanus you may administer an ounce of laudanum, and in many diseases, as well as inflammation, large doses of medicine are given, because they are requisite. Inflammation resists many agents, and amongst them antimony; but should you administer antimonial powder, its inertness is not to be attributed to resistance to the remedy in particular circumstances. I recommend you to give the

timonium tartarizatum. It is of no use to give a few drops of the wine; you should administer sufficient to induce nausea, for then you depress the system; give a grain or two every two or three hours. I remember a case of incipient phthisis, with inflammation of the bronchia in a man, a patient in St. Thomas's Hospital; I feared tubercles at the bottom of his affection, and I was unwilling to give him mercury; he took a grain of tartar emetic every four hours, without producing nausea, but after a few days it produced sickness. I then reduced the dose to every six hours. It will cause sickness at first, which goes off, and does not return for some time; but I have known it return and continue. I have made comparative experiments with antimony and mercury, and the success of those practitioners who employ antimony, in addition to blood-letting, is not so great as those who employ mercury. Should there be great danger in intense inflammation of the larynx, where the patient if neglected, would die in a few hours, I give ten grains of calomel every two hours: if your remedies do not operate speedily, the person will in a moment be suffocated, fall back from oedema in the glottis, and die. In other cases, five grains or less every four hours will do, but in cases where life appeared to be in great danger, I have administered as much as a scruple every two hours. Should the mercury pass off by the bowels, you should unite it with opium; or should there be an objection to this, you may give an infusion of catechu, which is one of the most powerful of astringents; but astringents in tinctures are injurious, therefore it is best to administer the infusion of catechu. *Kino* is as good as catechu. Should the calomel pass off, in spite of your efforts to prevent it, you may give *pil. hydrargyri*, but what is still less likely to do so is *hydrarg. c. creta*, which will quickly salivate a person, I have salivated hundreds with it. You may administer ten grains every two or three hours, and I think it has a greater tendency to produce sickness than any of the three forms of mercury. It is sometimes necessary to give it with opium. It may be proper to rub mercury in externally, on the extremities and abdomen, as rapidly as possible, You should get the mouth affected as soon as you can; and at every visit press the gums, and also under the lower jaw, look at the gums and smell the breath, and as soon as you find the mouth affected, suspend your remedy. In some cases, the soreness of the mouth will proceed farther than you desire, but now and then it is preferable to have violent pyalism and save life, than by over precaution to lose your patient. Now if you bleed properly, and induce a certain degree of soreness of the mouth, you will very rarely lose a patient with acute inflammation, if there is not some organic disease that keeps up the irritation; or unless your efforts are counteracted by improper diet or violent emotion, or by something unusual; these will beat all your remedies.

Dr. J. ARMSTRONG, an excellent physician, first generalized all the facts known relative to the use of mercury in local affections. Dr. HAMILTON states, that a navy-surgeon first informed him of the utility of mercury in inflammation; he administered it in pleuritis and in hepatitis, and they gave way in a very extraordinary manner, which

he had never seen in any of his previous practice. I state most particularly that you should not bleed the less beforehand, or at the time that you are giving mercury; for so far as you have a cause for bleeding, you should put it into practice, should you exhibit mercury or not, or any other remedy, or no remedy; but you will find as you proceed with bleeding, and as you give the mercury, and as it produces its effects on the mouth, that you have less cause to bleed. You will find, that you will have far less occasion to bleed, than if you administered no mercury; but if you omit bleeding, mercury will not answer, for bleeding is the great remedy. Mercury renders bleeding far less necessary, and it causes bleeding to be infinitely more efficacious, but it will never become a substitute for blood-letting. Dr. J. ARMSTRONG frequently stated that "bleeding was the right arm of medicine, and mercury the left, in the treatment of inflammation."

I agree with this excellent expression of a fact, from a man so talented as Dr. ARMSTRONG really was. Should the mouth become too much affected, you cannot give anything better than one ounce of chloride of lime or soda; the solution to be mixed with six or eight ounces of water, with which wash the mouth every hour, and the pyalism is speedily removed. Should ulceration have occurred, time must be required for it to heal; the sore mouth may remain a long time, but if you employ the chloride before ulceration, then the soreness from inflammation is removed immediately. You should give it with sufficient strength that the person may feel it, but you should not give it so as to cause pain; if you maintain a free state of the bowels, there is much less danger of a violent affection of the mouth, and should you open the bowels, you decrease to a certain extent the affection.

Opium.—It would be very injurious to employ this remedy in phrenitis, for example; but I think it is proper to give a full dose of opium after I have drawn away a quantity of blood; two or three grains after venesection to syncope, will frequently render it unnecessary to draw more blood, and it will send the patient into a refreshing sleep. It is void of danger, unless there be inflammation of the head; and if the venesection induce great irritation—if the patient be weak, it is very wrong to omit it; for frequently it may prevent morbid irritability and restlessness, which sometimes occur after bleeding; yet it must not supersede mercury, for I would give the latter, if I had not exhibited the former. Your particular object is to destroy the inflammation by copious venesection, and you may bleed locally, and give a full dose of opium after the blood is taken away; but you should be as careful to give mercury, as though it were the principal remedy. You may however cure many diseases without mercury. Mere bleeding, mere starvation will cure many cases, but if you exhibit mercury, you will cure many more. Always give one full dose of opium, in preference to repeated small doses; for opium possesses a stimulating power, consequently the pulse becomes fuller, and there is thirst; small doses repeated will cause both heat and thirst to continue. Dr. PHILIP applied to a denuded brain a small quantity of opium, and also of tobacco, and on examining the distant capillary vessels in the extremities, he found them very much ex-

cited; but when he applied a *larger* portion of opium and tobacco, the action diminished. This proves that the operation of large and small doses in general, is in perfect harmony with what we observe when we exhibit large and small doses of this remedy. Tobacco, in small quantity, will excite feverishness and heat during the whole night, and cause thirst; but a considerable portion will depress the pulse, produce chilly cold sweat, and pull down the powers of life. With regard to opium, if you require its sedative effects, you should administer it in full doses; but this would be dangerous if you neglected to bleed, whereas if you have drawn away a considerable quantity of blood, it is perfectly safe. Should you, or others, have drawn too much blood, opium then is of infinite service. The loss of too much blood will cause headache, throbbing of the temples, frequent and deadly faintings, great rapidity of the pulse, and vertigo; as is continually perceived in women, during and after labour. The great remedy then is opium; which diminishes the symptoms. Good nourishment and stimulants are very proper,—ammonia is one of the most efficacious; but the addition of opium alleviates extreme restlessness of the body greatly. In such a case, if you cannot induce the person to eat, it is necessary you should use the stomach pump; and strong broth should be injected into the stomach and rectum. But notwithstanding this state, you sometimes find that a local congestion of blood takes place, which renders it necessary to apply leeches. When the body has lost much blood, so that you are compelled to administer ammonia, and nourishment, and opium, you will find such a tightness of the head, such a degree of heaviness from local congestion, that ice or leeches are indispensable. You will in practice see cases, where, if you should draw away four ounces more of blood, you would send your patient out of the world. Mercury, colchicum, and so forth, are general counter-irritants; but in the treatment of inflammation, we are frequently obliged to employ a local counter-irritant—to set up a new action in the neighbourhood, or at a distance; purgatives act in this way, not only by removing a quantity of stimulating fæces, but by exciting the action of the intestines, and thus diminishing the action elsewhere. We employ also downright stimulants to the surface of the body, such as *blisters*, and *sinapisms*. It is best to apply a blister on the surface, over the internal part inflamed; for instance, over the right hypochondrium in inflammation of the liver—over the thorax in inflammation of the lungs; but with regard to the head, this is a dangerous practice when active inflammation is going on. Cold applied to the head is of great service,—very useful in inflammation of the brain, or of its membranes; but early stimulating the vertex by a blister is injurious. It is very wrong to apply a blister to the top of the head in the early stages of phrenitis, until you have evacuated the person sufficiently; after which it is beneficial. With regard to other parts of the body, it is proper to apply blisters over the internal part itself, which is inflamed. To produce an effect quickly, a mustard-poultice is the best. Some have excited a blister by causing the steam of boiling water to play on the part—or placing the boiling

water in a jug with a napkin in it, and suddenly inverting the jug; but a strong mustard poultice beat up with hot vinegar will produce an effect as soon as you desire. In young children ordinary blisters are frequently dangerous; and a mustard poultice applied to the back of the head, or to the abdomen, or chest, will induce as much irritation as is desirable; and one which you can controul, by removing the sinapism when the child evinces much distress. A large mustard poultice, covering the whole abdomen, or chest, is one of the best things; you can remove it when you please. Some will endure them for ten minutes, others will bear them for an hour. Cantharides has been substituted for blister; but after much experience, I have found it unsatisfactory. A blister was produced with a brush, but not directly; sometimes not until the next day, and then when it was going to heal a fresh blister would arise: frequently a far more violent blister was induced than I desired. Sometimes it would not arise at all, and in others blister after blister would rise. I therefore prefer the old practice of the common plaister, to cantharides. *Atonic inflammation* is where there is not only inflammation, but the body is in a state of debility, and you must trust more to mercury, and indeed to opium, than to evacuates; limiting the opium with the mercury for the purpose of decreasing the morbid irritability of the system, and make the evacuates means chiefly local, that is local bleeding, and trust much more to blisters, or cold than to local depletion. It is frequently necessary in these cases while you are drawing away blood locally, or while you are inducing syncope, by the detraction of a few ounces, to give good nourishment. It is not at all inconsistent when there is violent inflammation in a part, and little powers in the system at large to decrease the inflammation by local evacuates, and by cold; and giving nourishment, such as strong beef-tea, and milk, and other nutritious things, not perhaps wine or porter. In some cases it is necessary to give stimulants, but these are exceptions to the general rule. Where a part is not actively inflamed, but rather in a state of congestion, and where the complaint is not so much in the constitution, as in the part itself, this is denominated *passive inflammation*. In inflammation of the throat, when it is much swollen and of a dingy colour, without active symptoms; and frequently in the eyes, where there is more congestion than real active inflammation, local means are the best, for you desire to unload the part, to remove the congestion of blood. In such cases stimulating application to the parts are beneficial; they are in a state of *atony*, and you may, by astringents, frequently remove the unhealthy condition, much better than by mere local means. An accurate diagnosis is indispensable between *active inflammation*, and *atonic inflammation*, and a state, which is hardly perhaps to be called inflammation. Sometimes after an inflammation has been very active, you will perceive the symptoms continue, but greatly modified, with great debility, and morbid irritability, and that the remedies of inflammation will make bad worse. In almost every case of inflammation, this stage may arise, and this state of the symptoms may occur in the first instance, bearing so great a resemblance to inflam-

mation, that one ignorant of it, might commit error. This chiefly occurs in inflammation of the brain; you will find children exhibiting many of the symptoms of arachnitis, acute inflammation of the membranes of the brain, hydrocephalus acutus, (as it is denominated,) but without that disease, you will perceive persons labouring under sudden violent delirium, without inflammation, or so little, that debility, causing morbid irritability, is the chief feature of the attack,—and if in these cases, you were to draw blood, you would in all probability destroy the patient. The mode of distinguishing these cases is, by ascertaining that there is no great pain, and if there be, whether it be slight, or transient: in the next place, the pulse, although it may be quick, is feeble, and is not a pulse which would induce you to draw away blood. To proceed, the surface is frequently by no means hot, or if hot, it is only in a transient manner, and the face has an expression of weakness. In every case of inflammation, after you have by active treatment subdued its active inflammatory character; the person may fall into a state of morbid irritability, and the local symptoms may still exist, although, they may not be of an active nature. You judge of this, by finding, that whatever local symptoms still remain, the pain is not sharp, and if it is not quite gone, it is greatly reduced; the pulse is one which will not justify you in bleeding, for a degree of feverishness still remains, consequently, the pulse is very rapid, and irritable; a pulse which may be extinguished by the finger. In such cases, you should no longer proceed with evacuants, because they are highly dangerous; but give good nourishment, stimulants, and sometimes opium. These cases will occur after excessive depletion, and indeed after inflammation has spontaneously subsided, the local symptoms may continue in this form, and you will perceive this at the very commencement: it is seen in spurious hydrocephalus in children,—in delirium tremens, in spurious phrenitis, not always, but frequently. You will have to administer in these cases, wine and also brandy, but with the greatest caution. Indeed, you will frequently meet with cases, in which you cannot satisfy yourself whether active inflammation still exists, or how far it is a case of mere irritation, and you hesitate what course to pursue. I advise both plans; support the strength, administer moderate stimuli, cautiously, and watch their effects. You should also employ evacuants locally, but very moderately, or you may be doing injury on the other side. You should draw your conclusion from their action: for instance, if you consider it right to apply leeches while you are giving nourishment,—whichever appears the most efficacious, is most proper. With respect to *chronic inflammation*, you must be guided in your treatment, on the circumstance of its being active or passive; for you have little to do with the duration of the affection, or whether it is *acute*, or *chronic*, but whether it is *active*, or *passive*, taking into consideration what are the powers of the patient. You will frequently have to bleed in rheumatism, which for instance, has continued for a year, or two. I have seen cases existing for two or three years; the parts have been so hot, that it would have been a vain attempt to cure them without local bleeding.

In such cases the powers of the patient will seldom be very great ; but you are not to consider what is likely to be the case, but ascertain what the powers of the patient are—the degree of activity of the affection—and what proportion it bears to the strength of the patient. In these chronic cases, you can apply not only leeches, and cupping, from time to time, but those means which are not useful in active inflammation, such as issues, setons—the application of caustic, so as produce ulceration. Acute inflammation requires rapid treatment, but in the chronic form you can apply setons or moxæ. You can burn the part, or apply caustic and repeated blisters, or keep them open. You can produce great irritation with tartar emetic in the form of ointment, or spread on plaister : any of these things may be of great service. There is one form of caustic which is frequently of great use, even in certain acute inflammations, and that is *nitrate of silver*. I believe in certain inflammations of the skin, the application of lunar caustic wetted, and rubbed on the part, or a strong solution applied with a brush, is frequently of great service. I have not employed it extensively, but there is much said in its favour. I have, however, in one form of violent inflammation of the skin, made a circle around the inflamed part, without touching the inflamed part itself, so as to blacken it all around, and I have found it stop inflammation, which threatened to spread to considerable extent. I think I have seen lives preserved this way.

LECTURE XIV.

TREATMENT OF INFLAMMATION, ACUTE AND CHRONIC TERMINATIONS.—SPECIFIC INFLAMMATION DISCHARGES.—HÆMORRHAGE.

WHEN you find you have carried depletion as far as is prudent, in the treatment of acute inflammation, and you still have a quickness of pulse, with considerable irritation, you will then have cause to assume that the case is one of irritation, and you must support the patient well, perhaps administer stimulants and opium. Also in chronic inflammation, when you have persevered for a considerable length of time, and you find that in spite of all your evacuations—constant draining—constant abstinence, that the signs of local inflammation still exhibit themselves, you will have reason to suppose that there is something more than mere inflammation, that it is not merely the chronic form you are treating, but that there is organic disease at the bottom, which is keeping up the chronic form. You have no other reason to suppose, for the most part, that there is organic disease (unless you perceive enlargement and induration) in chronic inflammation, except that all you do has no effect on the disease; for the symptoms continue or rise again. It is impossible, for the most part, to say in disease of the liver, whether there is mere chronic inflammation or organic disease, such as tubercles of various description; for unless you can feel tubercles forming on the surface of the liver,

or a considerable enlargement of the organ, you cannot distinguish between them. So that when you have employed all the rational means in full force, and you perceive no effect from them, you then suppose there is something more at the bottom than mere inflammation. It is injurious to proceed with mercury in such a case, or with antiphlogistic measures to any extent; and you must support the patient well, for he will, for the most part, sink gradually under the complaint. In organic and tubercular disease, if you support the patient, tranquillizing him with opium, with attention to the general state of the constitution, you may extend human life, though you may not be able to cure. Do not adopt the idea of organic disease, either too hastily or too late. If you do hastily, you will not subdue the inflammation that you might otherwise have done; and if you take it up too late, and go on treating the disease as inflammation that may be subdued, you hasten dissolution, and the patient sinks much more rapidly.

In the treatment of what are denominated *terminations*, you should always ascertain whether these circumstances occur; such as effusion, suppuration, or mortification; whether inflammation be present or not, and if present, to what extent, and of what character—if it be active and tonic, or is attended with debility; and accordingly the same remedies may be necessary which were useful and requisite in the treatment of mere inflammation, before these terminations (as they are improperly called) occurred. Treat the inflammation present according as it is active, or more or less passive, as it is tonic, attended with strength of constitution, or as there is no strength, whatever may be the activity of the part itself.

You will also treat cases of effusion and suppuration as inflammatory, or *not*, because there sometimes is no inflammation. Should it occur that fluid is generated, whether that circumstance has taken place which is denominated "effusion," which is merely an excessive secretion, or collection in a serous membrane, to any amount; or whether suppuration has taken place, so that matter has collected; it may be quite necessary to let out the fluid in either case; for fresh symptoms may arise from pressure. It is frequently necessary, in case of a formation of pus; and in a case of mere effusion, or collection of fluid in a serous membrane. In hydrothorax, for instance, you may liberate the lungs, and avert the danger, by permitting the escape of fluid, effused in large quantity into the thorax. Some assert that you may do the same thing with regard to the pericardium. The liberation of pus, by art, is one of the greatest importance, for it not only injures by its mechanical pressure and distension, but it sometimes causes great mischief to the constitution, by its peculiar properties; and if it be confined, you will perceive the system in a state of depression—tongue brown—pulse feeble; and on making a free incision, by which the matter escapes, the patient will rally, probably, in the course of a day. If there is a mere collection of serous, or diseased serous fluid, sometimes diuretics are of great use, but for the most part, the remedies for inflammation, moderately continued, are among the best and most efficacious means. If you still administer

mercury, and continue low diet, you induce absorption of the fluid; and you do much better than merely cause an absorption of it, for you prevent an increase; and should you do this, in a great many cases, you cause nature to rid herself of it. Colchicum and digitalis are useful, for they will decrease the action that is going on, and keep down the fluid; and likewise tend to decrease the previous effusion. Colchicum excites the kidneys and alimentary canal, and it is therefore like mercury, very suitable. Should a discharge have been caused by art, or should nature have effected a new opening, you will support the system well, for the purpose of assisting her to bear this copious discharge. However, it is necessary to adopt, more or less, an antiphlogistic regimen. Give abundant nourishment, but not of a stimulating quality.

You may perceive a reason for not supposing that the necessity for antiphlogistic treatment is over when these *terminations* occur in mortification or ulceration. The latter will sometimes take place in consequence of inflammation around. I have seen this in cases of sore nipple, which has created a dread in the mother of suckling her infant; but if you merely apply leeches at a little distance from the sore, but on the breast, you will subdue the inflammation; and by keeping it down, the ulceration will frequently get well. It is often the case that an ulcer will occur in the legs, and yet not heal, because there is so much inflammation around it. In such a case plaisters and ointment are of no utility; but if you bleed and purge your patient well, you remove the tension and fulness of the vessels, and subdue the inflammation, which gives nature the power to heal the ulcer. It may be the same with all terminations of inflammation. You should always consider, in a case of mortification, whether inflammation is going on or not; or whether there is tolerable strength of constitution or not; for inflammation may attend mortification after it has commenced, and when it is decidedly going on. The inflammation may be active; there may be redness of the part, great pain, and great heat; and there may be also tolerable strength of the system at large. On the other hand it may be of the passive kind. The part may be dingy and swollen, with but little pain; and the strength may be in a deplorable state. It is frequently necessary, in mortification particularly, to adopt local antiphlogistic measures, and support the system at large; the system being in a bad condition. You should therefore support it by good nourishment; perhaps wine or even brandy will be necessary; whereas the part itself is disposed to run into a state of excitement, and mischief may arise from such treatment, if you do not prevent action of the part, by the application of leeches, and probably cold. Sometimes, of course, in mortification, it is injurious to employ such treatment. You must employ measures of the most stimulating nature; but you should recollect, that often the more you stimulate the part the greater will be the mortification. If the irritation be great, a poultice of carrots or turnips is of much use. If stimulants are required oil of turpentine is the best. Sulphuretted oil is likewise frequently efficacious. I have seen mortification stopped by these things, when the constitution has been well supported; but

you must recollect that these remedies are only to be adopted *when there is no violence of local inflammation*. Your first object should always be to prevent the gangrenous parts from injuring those adjacent; for putrid animal substances are very poisonous. You should also prevent the stench arising from the putrid portions, which you can easily do by charcoal powder, introduced into a fermenting poultice. Stale beer grounds and yeast are of use; and, in preference to all, chloride of lime or soda, continually applied,—not two or three times a day; for as one portion of the solution of chloride dries, a fresh portion must be employed, in order to counteract the putrescent tendency; and, unless you look after the attendants, you will find they neglect to employ them sufficiently to remove the stench. Bark was in former times much employed in mortification, it was praised and called a specific, but that cannot be the case; for frequently there is great excitement of the constitution, requiring antiphlogistic measures. However in an opposite condition of the system, where there is mortification, attended with debility, bark may be of great use; and especially sulphate of quinine, for it is common for the stomach to reject bark. Musk and ammonia united, given every few hours, frequently will arrest mortification, or *apparently* do so; but you must, in such cases, support the constitution well, at the same time opium also is very useful; for there is usually great general suffering and restlessness; and you should lessen the suffering by tranquilizing the system at large.

It might be supposed that if you removed a mortified part, you would stop the mortification; but mortification of a part, depends generally on the condition of the constitution; and therefore the fresh wound caused by amputating the mortified part, will fall into the same state; because of the condition of the constitution, which is in fault. Should an artery be injured to such an extent as to cause its obstruction, and the part supplied by it dies from the want of blood, the part may be removed without the disease spreading; because here the mortification depends on a local cause, and not on the constitution; and the fresh wound will not fall into the same state as the mortified part. But in almost every case where the mortification does not depend on a local cause, it is the best practice to wait until nature has indicated that the mortification will not spread till a line of separation has commenced; till you perceive that the powers of the constitution are sufficient to repair the injury; that the constitution is not in a state for the mortification to spread higher up; but on the contrary, that nature is capable of the healing process. Then you remove the part, and effect the object which nature was attempting; and you act properly. You should remember these things in the treatment of mortification—observations which refer to common inflammation. But I stated that inflammation may be also *specific*. For instance, gout runs a very extraordinary and peculiar course; also small-pox, beginning on a certain day, and undergoing certain changes on others. Gonorrhœa also has its origin in a cause, that will induce no other disease; so that these affections are “specific inflammations.” In the *treatment* of this species, we sometimes

adopt prophylactic means ; and we can prevent these complaints altogether. Small-pox may be prevented in many instances by cow-pock, for the itch, which is also a specific disease, we employ sulphur ; for syphilis, we employ mercury. However, for the greater part of these specific inflammations, we have no specific remedy ; and even if we possessed the requisite remedies, still it would be of the greatest use to treat them on the principles on which you treat common inflammation ; because you must remember that specific inflammation is common inflammation, with something superadded to it ; and if you treat it as a common inflammation, in addition to a specific one, you will cure it the sooner.

Some inflammations are specific at one period, and not at another. Generally ophthalmia is not a contagious affection ; but we have every reason for believing, that it is so sometimes ; and even erysipelas has appeared contagious ; for I think I have seen persons imbibe it in this way, and die. Catarrh is sometimes specific ; a common cold is an instance of common inflammation ; but sometimes there is an epidemic catarrh, which depends on some cause in the atmosphere, and not on the common cause of inflammation. It is also a fact, that inflammation may be specific at one period of its course, and not at another. Gonorrhœa is a specific inflammation at first, but certainly after some time it ceases to be contagious. When that time arrives, we do not know ; therefore we should not speculate on the presumption of its having occurred ; but I think that inflammation in the urethra, sufficient to keep up a discharge, will continue long after contagion is to be dreaded.

Those circumstances which are denominated *terminations of inflammation*, will not only take place with inflammation, but sometimes without it. Among those circumstances which occur in the course of inflammation or among the terminations of it, are *discharges* and *collections*, these may be the mere results of inflammation, or they may be intimately connected with inflammation ; and sometimes they may take place without any inflammation ; one of these discharges consists of *blood* ; one of *mucus* ; another is not a discharge, but a collection of serous fluid. A discharge of blood is termed a " hæmorrhage ;" a discharge of mucus, is denominated a " flux," or a " catarrh," or a " gleet," or a " profluvium ;" an excessive collection of serous fluid that cannot be discharged, is termed a " dropsy."

General hæmorrhages, fluxes, profluvia, and dropsies, are frequently the result of inflammation ; or are closely connected with it, though they may not be altogether the result of it. Frequently they occur without any inflammation being present ; and they will frequently last long after inflammation can be supposed to exist. It is just the same thing with regard to organic changes—changes of structure. Induration and softening are continually the effect of inflammation ; but frequently they appear not to be so.

HÆMORRHAGE frequently takes place in inflammation of a mucous membrane, particularly of the mucous membrane of the intestines, or of the urethra ; and less frequently in inflammation of the bronchia. It is a common case to perceive the most violent inflammation of a

mucous membrane, without the discharge of a single drop of blood, on the other hand, inflammation of a mucous membrane may occasion the most profuse discharge of blood, or at least a discharge; and this frequently too, without any violent inflammation. Why this happens, we cannot explain. The inflammation exists; but you cannot believe that it is the only cause of the hæmorrhage. That the hæmorrhage is inflammatory, is all we can assert; but it is scarcely the result of any inflammation; and in other cases we may see no symptoms of inflammation at all. Should hæmorrhage take place with signs of inflammation,—with pyrexia,—with a pulse full, or hard, or quick; accompanied with pain and heat, we then denominate it an *active* hæmorrhage; just as we should term an inflammation active, in similar circumstances, you should then treat the disease simply as inflammation. Treat the inflammation, and the hæmorrhage will subside, you generally bleed; and you most probably will find the blood buffed and cupped; but not, of course, in every case. You must purge the patient, as you would in inflammation; and it is safe and proper to exhibit mercury, you must keep the person on a low diet, similar to that observed in inflammation, cold also is very useful in such a case. Like inflammation, hæmorrhage may be *passive*. There may be no pain or but little;—no heat, no pyrexia, no quickness, and fulness of the pulse; or if there be quickness, the pulse is feeble. In such a state there may be congestion in a part, or there may not; all the veins may be distended; or the extremities of the vessels only may be pouring forth blood without any congestion. Should hæmorrhage occur without any symptoms of inflammation, or pain, or heat, or fulness or quickness of the pulse, yet the part itself may be in a state of congestion. Sometimes this is not the case, on opening a body, you may discover great congestion of all the vessels; and in other cases, you observe extreme paleness, where there is a considerable discharge of blood, and no signs of inflammation, and where there are symptoms of great fulness of blood in the part, it is generally venous; and this description of hæmorrhage will frequently be entirely mechanical. There may be an obstruction of some of the leading veins; and the blood may be poured forth mechanically. An obstruction in the spleen or liver, is a common cause of a discharge of blood from the intestines; but it will occur without any obstruction in a peculiar condition of the body. For example, in typhus, in small-pox, in scurvy, and in “purpura” (which is a peculiar affection) we cannot say why blood should be discharged; but it is in large quantities, without any signs of inflammation. A solution of continuity in some of the large vessels, affords another instance of passive hæmorrhage. There is no inflammation there. We perceive mere passive discharge, from the want of mechanical resistance; but this will not elucidate all these cases of passive hæmorrhage; for you have cases of very great debility of body, in which there is no hæmorrhage, and sometimes there is hæmorrhage of a passive nature, without inflammation, where there is not such an intense degree of debility. Generally, it is the mucous membranes which pour forth blood; so will the skin without abrasion. I never saw this; but I have read

of bloody sweat occurring in persons who have been bitten by poisonous animals ;—of blood oozing from parts of the body. I remember, in an American journal, one case of a person from whose cheek blood oozed in great quantity without abrasion. Ulcers sometimes afford much blood ; more especially in women whose menstruation is defective. Indeed there are curious instances with respect to the vicarious discharge of bloody fluid, should menstruation be suppressed, some women will have an ulcer break out on the legs, and it will bleed once a month ; and should there have been an ulcer previously, then it emits blood. I have perceived hæmorrhage from the chest occur in the same way. An hæmoptysis has occurred once a month, merely in consequence of a suppression of the menses, you should recollect that these two hæmorrhages, active and passive, just like active and passive inflammation, run into each other ; so that the treatment is difficult, but you should adopt both plans ;—that is, keep down the activity in the part, while you moderately support the system. You must adopt the very same treatment recommended in a doubtful combined case of active and passive, or tonic and atonic inflammation ; according as the pulse is quick—according as it is not full and strong—according as there is little pain or heat, you may employ the remedies as for passive or atonic inflammation. So in proportion as you perceive the pulse strong or quick, provided there is still a certain degree of strength of constitution, and as you find heat in a part, so you must employ antiphlogistic means more actively. You may resort to local measures for lessening the excitement, while you support the system ; and if you find the hæmorrhage of a decidedly passive character, so that you cannot treat it as inflammatory, by bleeding and purging, you must trust more to the application of cold to the part,—to local, and probably, even to general astringents. You may apply *cold* to the chest with safety, in spitting of blood. I have seen persons labouring under phthisis, sit up in a chair with scarcely any clothes on them, and ice has been applied to their chest ; and no suffering produced by it. It is good practice in hæmorrhage from the kidneys, to apply ice to the loins ; and I should give ice by the mouth and rectum, and place it on the abdomen, in cases of profuse discharge from the alimentary canal. I doubt the efficacy of nearly all *astringents*, excepting in the case of hæmorrhage from the alimentary canal, where catechu or kino may be employed advantageously ; and you apply them as locally to the part itself, as if you applied them to the surface of the body. I doubt the effect of those astringents which are intended to be absorbed, and thus act on a distant part of the body, unless they are of a saline character, and easily absorbed. Superacetate of lead is very efficacious ; but with respect to vegetable astringents, in a case of profuse hæmoptysis, I doubt if they can do good, by filling the stomach and intestines with kino and catechu. You may operate on distant parts, by means of metallic astringents ; and the superacetate of lead is the principal of these. We might suppose, being aware of the ill effects of lead, that you could not exhibit the large quantity that may be borne ; for you can not only give two grains in six hours, but two or three

grains may be given every two or three hours, for several days, without any danger or injury. You may exhibit a scruple of it in twenty four hours, and even nearly half a drachm, if you attend to the condition of the bowels. I believe that such doses are sometimes required, or you will not produce any effect. For a time there is no necessity to push on the doses so rapidly, unless you perceive the hæmorrhage obstinate. I have seen a stop put to hæmorrhage when the dose had arrived at a certain point; and I have seen it return, when the dose had been decreased from a wish not to overdo it. The only inconvenience I have known occur, has been violent pain in the limbs. You should open the bowels every day, or you would do wrong to give it. In passive hæmorrhage, it is right to give superacetate of lead freely, the pain in the limbs is of no importance; for your patient may well bear some pain after his recovery, when by suffering a little he may save his life, you may remove the pain by employing the warm bath, once or twice a day, and giving a little colchicum.

There can be no doubt but *sulphuric acid* checks profuse sweating; but it does not arrest hæmorrhage. I have seen the same effect result from nitric acid. The application in passive hæmorrhage of cold, and astringents combined with cold, and the administration of astringents internally, are among our principal means; but you will sometimes find the *oil of turpentine* very useful, and answer a most excellent purpose. By being introduced into the nostrils with a plug of lint, it will stop profuse hæmorrhage from them. I have seen the same effect produced in hæmorrhage from mortified parts. It will stop hæmatemesis, and melæna; that is, a discharge of blood from the stomach, upwards or downwards; but I am not aware that it stops hæmorrhage in the internal parts, except from the kidneys, and alimentary canal. I have had a great number of cases illustrating this remedy; indeed it has proved of great utility. You should not give it in large doses; for that would do injury, by inducing vomiting, and purging; which in such cases might be fatal. Twenty drops should be exhibited every three or four hours. Some have taken it voluntarily, when I should have hesitated to give it. I have known it taken in active hæmorrhage from the kidneys, and it has stopped it; but I would treat such a case as inflammatory, and then after a period exhibit oil of turpentine. Should the hæmorrhage proceed from a part you cannot get at, and you cannot stop it by any other measures, compression may be necessary, by means of a ligature compress, or the application of the *actual cautery*.

Active hæmorrhage takes place in young persons; the passive form generally occurs in middle age, or advanced life; but there may be exceptions to this general rule. It usually occurs from the nose in children; from the lungs and air passages in young adults; and from the abdomen chiefly, in old people. They are also subject to hæmorrhage within the head, causing apoplexy. Women, old, young, or middle aged, are very subject to hæmorrhage from the stomach; and also from the intestines, though in a diminished degree. It is generally of the passive kind, will usually bear astringents in the first instance, and does not need any great extent of bleeding.

The uterus, during the menstruating period, is subject to hæmorrhage, which is frequently inflammatory. I have seen many cases of menorrhagia, without pregnancy,—without delivery, yield directly to one or more depletions, and low diet; whereas all the astringents you could have given, would have been of no use in inflammatory hæmorrhage, attended with heat of body, pain in the loins, and quickness of the pulse. There is sometimes a constitutional tendency to hæmorrhage; for certain persons are subject to hæmorrhage from certain parts; while others are subject to it in general; for if they have a tooth drawn, they will bleed profusely; or if they cut their finger, it will bleed for hours in spite of the measures used to stop it. In some of these persons, there is an extreme thinness of the arteries. Sometimes after the extraction of a tooth, it has been necessary, from the extreme hæmorrhage, to employ the actual cautery; and although this was done, it was afterwards found necessary to tie the carotid artery; and the arteries in these cases were seen to be thinner than the veins in other people.

Whatever propels the blood violently, either generally or locally, or whatever mechanically accumulates it,—as posture,—the application of a ligature,—or obstruction in any part, may become the *exciting causes* of hæmorrhage. There is another,—the suppression of a discharge, or the sudden cessation of a natural one; the entire or occasional suppression of the menses; the suppression of hæmorrhoidal discharge, or of diarrhœa; and indeed the sudden cessation of a disease to which the patient has been very subject, although not an hæmorrhagic disease, is frequently attended by hæmorrhage of an internal part. That hæmorrhage which comes from the nose, is usually florid; and that which comes from the stomach, and intestines, is of a venous character; but although the blood may be black, that does not necessarily prove that it proceeds from a vein. It may attain this colour from its remaining in the stomach, and intestines before it escapes; for if blood is permitted to be quite still, and not exposed to the atmosphere, it will become black. If you tie an artery in two places, the blood between the ligatures becomes venous in its character; consequently, blood which comes from the stomach or intestines, while it may be venous, may be black from its temporary residence there. The blood effused within the head in apoplexy, appears venous; but it may be black for the reason just stated. During pregnancy the uterus is much subject to hæmorrhage, and during and after delivery; but the reason for this is, for the most part, mechanical. Hæmorrhage from the intestines and urethra, is very often caused by an inflammatory state of the uterus. Inflammation, if not the cause of menorrhagia in women who are not pregnant, and have not lately been delivered, is at least a very common attendant circumstance; and if the menorrhagia has nothing to do with the impregnation of the womb, it is generally of an inflammatory nature. From the lungs, in the head, in the stomach, and in the intestines, we frequently have hæmorrhage from simple mechanical causes;—from ulceration, or solution of continuity. One cause of hæmorrhage in the head, or apoplexy, is brittleness of the

vessels; their tenuity of them, or even ulceration of them. Hæmorrhage frequently arises from a mere inflammatory state of the bronchia, or of the air-cells. Hæmorrhage sometimes occurs from ulceration in phthisis, although nature endeavours to prevent it by forming adhesions, and plugging and contracting arteries; yet ulcers will produce hæmorrhage and sudden death. Hæmorrhage will sometimes occur from ulceration in the stomach, which may cause death. The same occurs in the intestines. There may be ulceration of even a malignant character, and from time to time a profuse hæmorrhage. It is common for a person to spit blood after a blow on the chest, or from a fall; and after a blow on the loins, it is common to void bloody urine; and to discharge blood from the intestines, after a fall.

LECTURE XV.

HÆMORRHAGE.—DROPSY.

IN the two forms of hæmorrhage we have described, the state of the system at large is wholly dissimilar. In active hæmorrhage,—that which resembles active inflammation,—the blood is, as it were, *forced* out; whereas in passive inflammation the blood is *let* out. In active inflammation there is an intense circulation going on in the part; that is, the blood appears to be moving more speedily than natural;—it may not really be so, but there is a greater *quantity* of blood moving through the part. The action of the heart is strong; and the blood is forced out of the extreme vessels. If we moderate the force of the blood, the hæmorrhage, for the most part, ceases. In passive inflammation, on the other hand, the force with which the blood is impelled to the part, is not increased; there is no great impulse behind; the blood is not driven on; but the extremities of the vessels are so relaxed, that the blood escapes. You will therefore employ different means, not to stop the force of the blood, but to close the extremities of the vessels, and to close the open vessels themselves, as much as you can, and so diminish their diameter, in order, that the blood may not be let out. All the astringents, all the stimulants, and all the compression you might employ, in active inflammation, would not effect much good; for there is an active hæmorrhagic tendency. The blood is driven on with great force; and if you treat it as inflammation, the hæmorrhage for the most part ceases; whereas in passive inflammation, if you were to annihilate the force of the blood from behind, by debilitating measures, you would only increase the mischief by increasing the relaxation of the vessels, and rendering them more liable to give way than before. In mixed cases, it is proper to employ both modes. Recollect that a great number of cases are inflammatory; and that others depend entirely on relaxation; consequently mechanical means, astringents, cold, and fire, may here be necessary. You not only have profuse hæmorrhage from the mucous membrane of the bronchia, the stomach, the intestines, and from what is nearly a mucous membrane,—

the interior of the kidneys, and indeed, of the urinary bladder; but other parts are sometimes the seat of hæmorrhage that proves fatal. I have known it occur in the pericardium; and it has proved almost instantly fatal. I have heard of fatal hæmorrhage in the spinal sheath, without any apparent cause; and in fatal cases of hæmorrhage in the pericardium, it is said, that the heart, and the pericardium, have been found softened. I have seen this myself. If hæmorrhage takes place from a mucous membrane, it is from a large number of minute vessels; and you may have a profuse hæmorrhage in a very short time (a minute, or two) which proves fatal, without injury to any vessel. I remember seeing a patient, with (I believe) phthisis, who was sitting up in bed. On a sudden, blood came from his mouth, he fell back, and expired. We found, on opening him, the stomach filled with blood. There was an immense coagulum, forming a mould of the stomach; but we could not discover the orifice of any vessel. DR. BAILLIE has mentioned similar cases, both in mucous and serous membranes, in which he could not discover a vessel which appeared to have poured forth blood. Thus the pericardium will permit the escape of an enormous quantity of blood.

Precisely similar in principle, are those affections that take place from those parts, most commonly the source of hæmorrhages; that is, from the mucous membranes. They are fluxes, catarrhs, or profluvia; and they occur from the nose, bronchia, intestines, bladder, urethra, and vagina. Those parts which during inflammation, will frequently pour forth blood, will also pour forth a much increased secretion in the first instance. It subsequently declines; but does not come down to the standard of health; and then, as the inflammation subsides, the new secretion becomes excessively abundant. There are then inflammatory fluxes and catarrhs, from the mucous membrane; exactly, as you have inflammatory hæmorrhages; and when the signs of inflammation have subsided, the discharges continue frequently. Again, where there is no inflammation, the mucous membrane may pour forth a quantity of liquid, for some time. There are passive fluxes, exactly as there are passive hæmorrhages, with this difference,—that in one case you have blood, in the other a secretion. The skin will every day pour forth an immense quantity of its secretion; but the term *flux*, *catarrh*, or *profluvium*, would not be given to such a discharge; and just as the mucous membranes pour forth their discharges in excess, so frequently does the skin. Thus profuse perspiration, is analogous to profuse discharges from the mucous membrane. An excessive discharge from the skin, is more frequently than not, entirely free from an inflammatory character. Indeed in the highest debility—the debility of syncope, or the debility of death;—the secretion of the skin is abundant. So it is with the mucous membrane. ANDRAL agrees with me in opinion. This instance of the skin would enable us to say, *a priori*, that this is possible; but I think, *a posteriori*, we can say that mucous membranes will secrete most abundantly, and yet be devoid of inflammation; for after fluxes, they are entirely pale after death, just as they frequently are after passive hæmorrhages. It

appears to me to be analogous to the case of inflammation itself; and also to hæmorrhage. You may have an active secretion from the mucous membrane, and from the skin, as in acute rheumatism; and you may have it quite passive,—without any sign of inflammation.

The *treatment* of these fluxes, is the same as of inflammation, or hæmorrhages. Should they be of an active kind, with strength of pulse, pyrexia, heat of body, pain of the mucous membrane itself,—the pain which is characteristic of inflammation of a mucous membrane, and increased by pressure,—astringents are altogether improper; and entirely useless; just as they are in active hæmorrhage. It would be as absurd as to endeavour to stop the discharge of gonorrhœa with them, during the violence of inflammation. You must decrease the inflammatory state by bleeding; and the discharge will become diminished, or put into a course of diminution. Probably there may be a momentary increase; but it is followed by a diminution; exactly as is the result in the active hæmorrhagic process. When the inflammation is not present, or when it has subsided, you may apply stimulants, and astringents,—they are then advantageous, and proper remedies. But should there be no inflammation from the commencement, you may at once apply astringents, and stimulants. The urethra is an excellent illustration of all that takes place in the various mucous membranes of the body. There is increased secretion in inflammation; and the secretion and inflammation can only be subdued by anti-inflammatory means; and, at last, you will have only a passive discharge; and then such means will increase the mischief; and you must therefore resort to stimulants. Frequently you will have so little inflammation, that you may disregard it. It is sometimes the best remedy in diarrhœa, to bleed, to starve, to leech, and to blister;—to administer no astringents, but simply do this, or you may purge him as well, in order to increase the effect of your treatment, and then you subdue the inflammation. In other cases, you must give astringents, and opiates, and support the patient well; and he will recover. In active bronchitis, it is the same; for any remedies which stimulate the air passages, would be improper. Bleed and starve him, and treat him as labouring under inflammation; and the discharge of mucus will gradually subside. Should you have an old man with a profuse discharge from the bronchia, forming what is termed "*catarrhus senilis*,"—devoid of inflammation, but attended with emaciation and paleness,—you must exhibit tonics, and give good nourishment. Snake-root is the best medicine.

Dropsy is decidedly analogous to fluxes and hæmorrhages. It is not an affection of the mucous membrane, but of the serous and cellular membrane; and the fluid secreted here is in such excess, that it is not absorbed proportionately; and as they are closed parts, the fluid does not escape, as it does from mucous membranes; so that instead of a discharge, you have dropsy. This is the only difference between these affections. The collections occur in the arachnoid, the pleura, the pericardium, and the peritoneum, with the general cellular membrane of the body; and are sometimes of an

active inflammatory nature, and not to be treated by diuretics, but by anti-inflammatory measures. We continually perceive dropsy in the arachnoid, the pleura, and the pericardium, of an entirely inflammatory character, both acute, and chronic. Sometimes, though not so frequently as in the cases just mentioned, you will perceive dropsy in violent inflammation of the abdomen; and ascites itself is very often a decidedly inflammatory affection. In such cases, we perceive the usual signs of inflammation of the serous membrane. Should the affection be situated in the arachnoid, you will have pain of the head, intolerance of light, and very probably squinting, with great quickness of pulse. In inflammatory dropsy of the pleura, you have pain in the side, dyspnoea and cough. With respect to the pericardium, you have pain in the region of the heart, darting in many directions from that organ; and with respect to the abdomen, the pain is great, and increased by pressure. Thus arachnitis, pleuritis, pericarditis, all tend to induce more or less effusion in every case. Sometimes it is considerable; and then it is called "dropsy." When the cellular membrane is in a state of dropsy, that is when it contains a quantity of fluid, you have a white soft, and inelastic swelling of the surface; which pits on pressure. The swelling sometimes becomes red; because the skin may be inflamed, as well as the cellular membrane. It may not be soft, but very hard; in consequence of the high degree of inflammation in the cellular membrane, and the fibrinous character of the effusion. The tumor is largest, wherever the gravity directs the fluid; consequently any part which is dependent, becomes much more swollen. We can regulate the swelling by the posture of the part; but the swelling will frequently shift notwithstanding the position of the part. If a patient be lying straight in bed, one day you will perceive the left arm swollen, and the next day the right. It will fly from the arm to the leg, and then return again, in spite of any position.

When this dropsy of the cellular membrane is inflammatory, it often commences in the face; because it arises from cold, and cold is as frequently applied to the face as any where else. Wherever these collections may be seated, the urine is scanty; but if the cellular membrane be affected, and the affection be of an inflammatory character, the urine is commonly of its natural quantity, and sometimes above it. *Inflammatory dropsy* of the cellular membrane arises more commonly from cold than any other cause; while an affection of the arachnoid of the same nature, and also dropsy of the pleura, pericardium, or peritoneum, may or may not arise from that source. If inflammatory dropsy arise from cold or wet, there is generally inflammation of some internal part, or at least an inflammatory condition. Should you enquire into the state of the patient, he will say his head feels heavy, probably he will complain of violent pain. If you press the abdomen, you will frequently discover tenderness; or you may find an inflammatory state of the chest, in which the patient complains of pain, and also has cough. On listening with your ear, or on applying the stethoscope, you will find either the sonorous, or sibilous rattles of the bronchia; or the crepitous rattle of inflamma-

tion of the air-cells. In most cases, you will find inflammation within the chest. In dropsy, of the cellular membrane, the pulse is frequently hard, and full; arising from the local symptoms of inflammation in the head, chest, or abdomen. From the strength of the pulse, from the suddenness with which the dropsy has occurred, and from the nature of the causes which have induced it, being such as produce inflammation, you judge that the affection is of an inflammatory nature; for although the disease is inflammatory, you will not find the cellular membrane tender, nor is it painful; yet the inflammatory nature of the affection is very evident, from the relief experienced on bleeding freely; from the state of the blood, which will perhaps be cupped and buffed; and from the nature of those causes which produced the affection. The local inflammation existing in the head, lungs, or abdomen, may usually account for the buffiness of the blood, and the relief afforded by depletion; and when you see the dropsy cease so quickly after you have drawn blood, you cannot but believe that you had been treating inflammatory dropsy. In some of these cases, the urine is of an albuminous character, that is, containing serum; and it is said that we should be guided in our bleeding, and in our judgment whether it is inflammatory or not, by the appearance of the urine. Dr. BLACKALL states "that the quantity and firmness of the coagulum of the albumen in the urine, is generally proportionate to the degree of inflammation, and to the necessity for employing anti-inflammatory measures. The albuminous state of the urine may be ascertained, by placing some in a spoon, and heating it over a candle, until the temperature arrives at the point, at which it coagulates; or by putting vinegar to it, and then prussiate of potass; when, after a time, the albumen will be precipitated. It is necessary to add the vinegar first, or you will not procure a precipitate; and this latter mode is much the best. Dr. B. also states that there may be albumen in the opposite state of debility; and in that case bark will affect a cure. He has pointed out an albuminous state of the urine in many cases of dropsy; shewing that it frequently attends an inflammatory state; but if you take the urine for your guide you will practise badly. It is many years since Dr. B. wrote his book, and it would be strange if we had not improved our knowledge since. I have found it common for patients to be cured of dropsy by bleeding; although no albumen could be found in the urine; and on the other hand, in cases where there has been albumen in the urine, bleeding has not cured the dropsy. I have seen abundance of albumen where there was such debility of body, as to prohibit bleeding entirely. You will therefore determine in every case of dropsy, whether you should bleed or not, by observing if there be inflammatory symptoms or not; not by considering the state of the urine, in the least; but whether the symptoms are those of inflammation or not. Should you find the pulse full strong and quick, together with strength of body, this state would indicate a case of an inflammatory nature. Should you find that there is local pain, with other symptoms of local inflammation, whether in the head, chest, or abdomen, that is sufficient to indicate the case as one of an inflammatory

character. If you cannot ascertain much from these, if the pulse does not indicate any phlogistic diathesis, and should the head, chest, or abdomen be particularly free from inflammation, yet if the disease has come on suddenly, as is the case with inflammation; if it is not the work of slow disease, like chronic visceral inflammation; but come on suddenly, and from the common cause of inflammation, such as the application of cold and wet, especially when the body is heated too much;—then you may assume that it is an inflammatory case; and you should bleed as far as the pulse will permit; and the pulse will frequently *justify* you, although it may not *indicate* it. You must resort to the pulse, not only to know what to do, but to learn if it will permit you to do that which other symptoms point out to be proper. If dropsy comes on suddenly, from cold or wet, and the pulse will justify me, I treat it as an inflammatory affection; and should the pulse be full, and attended by a phlogistic diathesis, and the signs of local inflammation, the treatment is no longer doubtful.

In organic disease of the kidney, according to Dr. BRIGHT, the urine is generally in an albuminous condition. ANDRAL, in a case where the urine was albuminous, found the kidney in a granulated state. Dr. BRIGHT has discovered, that when the kidney was in a disorganized condition, the urine was generally albuminous; but he does not say that when the urine is albuminous, the kidney must be in a state of *organic* disease; for he states he has sometimes found it only gorged with blood, still it was affected. Others say that no one can have albuminous urine, without having organic disease of the kidney. I cannot believe this; for I have seen persons who have been quite well a day or two before; but having got wet through, symptoms of inflammatory dropsy have come on. The urine has become albuminous; and when I have drawn blood, the dropsy has presently been subdued, and the urine has recovered its healthy appearance immediately. I think, then, it is mere presumption to suppose, that there must have been disease of the kidney, because the urine was albuminous for a week. I could not open these people to ascertain whether there really was disease of the kidney; but when they were in good health before, and in perfect health afterwards, and the urine was no longer albuminous, I do not think there is any foundation for believing that there was organic disease of the kidney, any more than that there is cancer of the stomach, in every case of dyspepsia; for when patients die of this affection, there is more or less organic disease. It does not follow that when a person dies, after making albuminous urine, you should find organic disease of the kidney; or that when the urine temporarily exhibits the same thing, and the patient recovers, he was affected by any thing more than a *functional* complaint. Because the affection of the kidneys may arrive at a degree of intensity, such as to destroy life, and you then always find *organic* disease, it is not a necessary consequence that the temporary formation of albumen in the urine, should be any thing but a *functional* disturbance of the kidneys. I should say just the reverse; and would suppose that it *must* be functional, if the symptoms were *temporary*. I have been informed that some persons,

after they had taken pie-crust, and it had induced dyspepsia, found their urine became albuminous. This is what I should expect.

It often occurs that dropsy is not inflammatory. We see patients very pale, with a pulse exceedingly weak—with extreme debility of the whole body; and the more you weaken them the worse it is, the dropsy increases. Dropsy is often an accompaniment of organic disease in various parts. In disease of the liver, it is common for the peritoneum to be become affected by dropsy; in disease of the womb the lower extremities become cedematous; and at last it spreads through the whole body, and you see what is denominated “anasarca,” which is a general dropsy. “Cedema” is a local dropsy of the cellular membrane. Should you perceive no signs of inflammation, no fulness of the pulse (there may be *quickness* without *fulness*), but on the other hand debility; and should you find the powers of the patient becoming very much reduced, you must class the affection with passive inflammation—with passive hæmorrhage—with passive gleet—the last being a passive discharge from a mucous membrane; and many things which debilitates the body, makes matters worse. This is certainly the case, if there be disease of the liver,—a liver full of tubercles, or indurated; or scirrhus, or carcinoma of the womb; or ulceration of the lungs. It is also, sometimes, like hæmorrhage, entirely mechanical;—not dependent on inflammation on the one hand, or on debility on the other; but on mechanical obstruction. Whenever the large vessels are compressed, this will produce dropsy. They become so turgid, that in order to ease themselves, they pour forth the serous portion of the blood; and should this be insufficient, there is an escape of blood itself. In treating inflammatory dropsy, we must bleed, and purge freely, adopt low diet, and sometimes exhibit mercury. In this form of the affection we should give ourselves no concern about diuretics, any more than about astringents, in active hæmorrhage from a mucous membrane; for if you treat the inflammation, you will perceive usually the water gradually decrease. Sometimes, however, it does not; and then it is proper for you to exhibit those purgatives termed “hydragogue,” which induces watery stools. Purgatives are of great use in inflammatory dropsy; for they act as anti-inflammatory remedies, just as bleeding does, in diminishing the bulk of the fluids; which causes a rapid secretion of fluid, thus acting on the cause of the disease, by tending to subdue the inflammation. They also act as opallatives, causing the absorption of what is effused. Diuretics are useless in the inflammatory state; for they will not *then* act on the kidneys; and the more you stimulate the latter, the less urine is secreted. Hydragogue purgatives act like bleeding; and by administering them, you hasten the absorption of what has been collected; and in proportion as the inflammation decreases, these purgatives exercise more power over the kidneys. The best are a mixture of cream of tartar and jalap, or elaterium. When the dropsy is devoid of inflammation, starving and bleeding will increase the collection ten-fold. You must then give wine, probably good nourishment, steel, sulphate of quinine, and various diuretics; for the complaint hangs on the

person so long, and the collection of fluid is so troublesome, that though diuretics will not effect a cure, yet they decrease the fluid. The best perhaps are digitalis and squills; or you may give potassa; for by giving a great number of remedies, you do more service than by administering only one. You can give them to a full amount by combining several together. The hydriodate of potassa, and all the salts of this alkali, are powerful diuretics. By giving mercury, you increase the effect of diuretics; and in inflammatory dropsy, mercury is extremely beneficial as a remedy against inflammation; but in the opposite kind it would do harm, by increasing the debility, especially should there be much structural disease. But if you exhibit it so as slightly to affect the mouth, it will cause the diuretics to act more powerfully on the kidneys. You may sometimes cure dropsy by producing ptyalism, when all other things have failed; but this is not always the case, unless the dropsy is in some degree inflammatory, or there is inflammation of some organ. Give therefore mercury moderately; for it will make the diuretics act much more efficacious.

Should the chest be oppressed, and the patient be in danger from suffocation, or when the abdomen is distended, and is attended by intense pain; or when the cellular membrane is distended, so as to prevent the patient from walking about; and you cannot wait for the cure of the dropsy itself, or its cause (whether it be debility, or obstruction, or any thing else) you should resort to purgatives,—say *elaterium*. These, in full doses, are better than diuretics; for they discharge more, and frequently go to the cause, and remove some obstruction, or some congestion, or inflammation. You may give diuretics with purgatives; for together they will be more effective. *Diluents* are of use at the same time; because diuretics are frequently very acrid, so that they irritate the kidneys much more than is necessary for secretion; and their operation is much facilitated, if the patient drink largely of diluents. It is the same with regard to purgatives; they act better with diluents. There are mechanical means which we resort to when the patient cannot wait any longer, in consequence of oppression, caused by the quantity of fluid; and when we fail in our endeavours to remove the disease. These are tapping of the chest and abdomen; and, in cases of anasarca, making minute punctures in the skin with a needle. Some scarify; but a needle is best; for by making minute punctures, an immense quantity of water may be drawn away. You should not introduce the needle deep; but just through the skin, by rotating it between the finger and thumb; and on your withdrawing it, a bead of clear serum appears, which for a time becomes larger and larger, and then trickles down; and probably the oozing will last for some time. I have known it continue for days, even after death. I never saw injury arise from twenty to thirty punctures, when above the knee. I have known patients lose their lives from these punctures; gangrene has occurred after this slight operation; but in every case the punctures were made below the knee. You should likewise always make the scarifications as high as possible towards the trunk of the body, near its

most powerful parts. The same with acupunctures. I have used them with great success all over the trunk; and on the thighs as low as the knees; and in all parts of the upper extremities, without any inconvenience, I used them below the knee before I was aware of the danger, and without any accident at all serious; but I have heard of cases where the operation below the knee was followed by sloughing of the skin, and many of the muscles. One patient lost the *gastrocnemii*; and, at the end of three weeks, his life. That is what no one would have supposed. Now and then these mechanical means are necessary, but not so frequently as you might suppose, if we treat the disease as to whether it is inflammatory or not. You will find that one half of the cases of dropsy are of an inflammatory nature, and will yield to bleeding with other antiphlogistic remedies.

LECTURE XVI.

INFLAMMATORY DROPSY.

INFLAMMATORY anasarca is very frequently allied to inflammation of certain internal organs; with an inflammatory state of the head,—for instance, not a decided phrenitis, but heaviness, giddiness, and pain; or with an inflammatory state of the abdomen; but more frequently with an inflammatory state of the lungs, in the form of bronchitis, (which is certainly the most common) or *peripneumonia*. The other kind of dropsy which exists independent of inflammation, is united with and is one of the last symptoms of organic disease, of an internal organ. In disease of the heart, it is common for a person to become dropsical, and in many instances of phthisis, there is œdema of the legs, towards the conclusion of the complaint. Should the uterus, liver, or spleen be diseased, it is very common to have dropsy. These diseases resemble hæmorrhage, and fluxes, which are of an active inflammatory character; and must be treated with the remedies for inflammation;—not by astringents but by anti-phlogistic means; not by those measures which will carry off the fluid, or stop up the mouths of the vessels which discharge the secretion. Sometimes in hæmorrhage there is no inflammation, but merely debility of the vessels, which permits the blood to escape from their extremities. Dropsies and fluxes frequently appear in that form. Hæmorrhage also frequently arises during visceral affections. In disease of the liver, you frequently perceive hæmorrhage from the nose;—in organic disease of that organ, and also of the spleen, your patient will vomit blood, and discharge a large quantity from the alimentary canal downwards; and when various organic diseases produce ulceration, you will have excessive hæmorrhage; which is continually observed in the case of the intestines and uterus. Respecting dropsy, when structural disease occurs in various organs, the whole body or a particular part of it, may become affected with dropsy; and the more you debilitate the patient in such a case, just as in passive hæmorrhage, the more will you increase it. In many cases of dropsy and hæmorrhage, a flow of

blood proceeds from mechanical obstruction; and if obstruction occur in any of the veins, dropsy is the result; for more or less local plethora occurs in all the vessels on the other side of the obstruction; and as a mere physical effect, the watery portion of the blood oozes forth from their extremities; and the part becomes more or less turgid from the great congestion. Swelling of the leg after parturition, denominated "*phlegmasia dolens*" depends on mechanical obstruction; so does dropsy of the leg, on obstruction of the veins at the upper part, and probably also the veins still higher up. Pressure of a very enlarged womb, will thus frequently produce dropsy of the lower limbs. When the breast is affected by cancer or scirrhus, if the disease involve the axillary glands, the upper extremity becomes œdematous, from mechanical obstruction. It is not necessary that the absorbents should be attacked; for in an obstruction of the veins, the same occurrence takes place, if local plethora of the veins and capillary vessels occur, and they discharge a watery secretion; dropsy is sure to be the result. You may have dropsy without inflammation; and if so, there may exist, or there may not, organic disease in the system, affecting particular parts. If phthisis, disease of the heart, or disease of the liver, it is very clear; and you may usually ascertain the state of the parts. The liver you will find enlarged or indurated, or both; so will be the spleen; but if you cannot discover any organic disease, and yet there is inflammation, while the person is sinking beneath his dropsy, with the urine constantly in an albuminous condition, the kidney is diseased,—granulated and mottled; or there is great congestion of blood.

Frequently anasarca will exist alone; and it often is an inflammatory dropsy. When it is not, it often exists without any organic disease; but after death you may probably discover the kidney diseased. Anasarca, as one form of dropsy, frequently follows others. Should a person have water in his chest, generally the legs, and perhaps the whole body, become œdematous, should there be effusion into the abdomen. "*Acites*" is very common; and, soon or late, it is followed by swollen legs; and at last the œdema may pervade the whole body and become anasarca, sometimes it may exist alone, or it may follow others; it may be the first that commences; and then other dropsies follow. The PROGNOSIS is only to be made from observing the degree of disturbance, and the strength of the patient. This applies to hæmorrhages, fluxes, and to dropsies; but when dropsy is not inflammatory, it depends on organic disease; so that your prognosis in a great many cases of a chronic nature, will depend on whether there is evidence of organic disease; and whether, although the dropsy improves, some other symptom does not continue, or get worse. Dropsy may diminish suddenly; and the patient so far from getting better, although it appears the case, will, in a short period, die; and often, a short time before death, all the external symptoms have diminished. Frequently ascites will nearly disappear, or improve greatly at last; and the œdema of the legs and body will diminish very much; and yet the patient will speedily die, probably of apoplexy, or of effusion into the chest. You ought not to be satis-

fied with the disappearance of the symptoms; but should observe whether there are not sufficient indications of mischief to make you anxious as to the result. Sometimes the most intense symptoms may exist, and speedily exhibit the most dangerous character, after dropsy has diminished spontaneously. The fluid in these various dropsies in the chest, pleura, pericardium, peritoneum, and in inflammatory dropsies of the head, is often very clear; but sometimes it is rather turbid,—not transparent though translucent. Again, it is sometimes very turbid; and again, sometimes it is bloody. It is very clear in anasarca, as you will perceive by the operation of acupuncture. In chronic dropsy within the head, it is almost like rock-water. In chronic hydrocephalus, it is collected within the ventricles of the brain. It is like pure water; and contains the least possible quantity of animal matter, and salts. There is no morbid collection of fluid in the body, that is so much like pure water, as the fluid in chronic hydrocephalus.

In some other diseases you will have the very reverse of hæmorrhage, profluvia, and dropsy;—you will have a deficiency of secretion. In the height of inflammation, it may become scanty, from the part itself; though it is increased at first, it decreases subsequently, but still generally remains above its natural quantity. It is sometimes at a stand; the secretions of the part itself, as well as of the rest of the body, are decreased; but often the affected part hardly secretes at all. This may take place without inflammation, just as violent discharges sometimes do. We may have a perfect deficiency of secretion, independently of inflammation; as occurs in a remarkable way in the kidney. Aged men will sometimes cease to void urine; not from any retention, but from suppression;—the kidney ceasing, or nearly so, to secrete. Ischuria renalis is an instance of a case opposite to that which occurs in profluvia. On opening dead bodies, you will sometimes find a similar state of the serous membrane;—the pericardium and pleura are sometimes almost as dry as a piece of dried bladder. I am not aware that this state induces any symptoms during life; but that which is discovered after death, is entirely opposite to what occurs in the affections just mentioned.

Inflammation produces changes of structure. I have been speaking of those which affect merely secretion, or the escape of different fluids. Changes of structure are frequently connected with inflammation; but sometimes like hæmorrhages, dropsies, and profluvia, they are unconnected with it. There are in the first place, changes, of *consistence* and size; secondly, transformations in which the substance is changed in its *nature*; thirdly, new formations, which are entirely different from what exists in the body naturally. Two or three of these may happen together. With regard to changes of *consistence*, there can only be two;—hardening and softening. **INDURATION** may be only apparent, though the organ may feel and really be, much harder than natural, for if there be extreme congestion in a part, so that it cannot expand, it will of course become much larger, and feel harder than natural. For instance, should there be an obstruction to the flow of blood from the liver, though

the liver will only be of its natural hardness, yet, in consequence of the obstruction, it will feel *very* hard; but should you make an incision, and let the blood escape, it then feels of its natural consistence. This effect may be induced during life; and after death a violent injection of fluid will produce the same occurrence. Therefore when you perceive a part indurated, you must judge whether it is organic induration, or a mere turgescence, or repletion, caused by an excess of fluid. If the hardness be merely in consequence of a collection of blood in the part, it will be of a deeper colour; but if the part be organically hardened, it is usually paler. Being very compact, the diameter of blood-vessels will be lessened; consequently, there will not be such a proportion of blood as there was previously. The hardened part sometimes acquires a new colour,—grey, yellow, brown, or black. If a part becomes indurated, it does not follow that the size should be altered. It may be larger, or smaller; or it may retain its natural size. In fistula along the side of the rectum, and in *fistula in perineo*, you may find the parts very hard. Sometimes you will find the heart affected in size; and it is not uncommon for it to be hard. In young children especially, you will find the cellular membrane hardened. This process of hardening is for the most part slow; and is usually the effect of chronic inflammation; but it does not occur, sometimes, until the inflammation is over;—until, from the paleness of the parts, you suppose inflammation no longer exists. In this case the best *treatment* is by irritating the part; but should the hardening be attended by inflammation, antiphlogistic remedies are the best;—local and general bleeding, together with mercury; iodine, fomentations, poultices, friction, and pressure. Sometimes, where there is no inflammation, it is proper to excite a great discharge from, or close to the part; as that will frequently cause absorption of the excessive matter which has been deposited. Sometimes when there is no inflammation, the treatment of an indurated part becomes so irritating, that inflammation is induced; so that although inflammation might at first have laid the foundation of the disease and produced it, yet subsequently it has ceased; and then again comes on a third stage.

The French call the opposite to induration “*ramolissement* ;” which of course means *softening*. It was once described very vaguely; just as induration was once described as a termination of inflammation, by the term “*scirrhus* ;”—this being confounded with simple inflammation. We are indebted to the French for our knowledge of the change of parts in the process of softening. It is seen in the nervous system in a remarkable way; and also in the alimentary canal. The mucous membrane of the stomach and intestines, is frequently reduced to a pulp. You may brush it off with the touch of the finger; and sometimes it is brushed off before death. The brain is often reduced to soft paste; it takes place also in the skin; sometimes in the epidermis, and sometimes in the cutis itself. The nails are sometimes so softened, as to have the appearance of wet card. It will also affect the cellular membrane; and then it will allow the serous membrane without the intestines, or the mucous

membrane within, to be peeled off. If we can peel off the peritoneum from a portion of the stomach or intestines, it must be from the cellular membrane beneath having become so softened, that the serous membrane is no longer attached. The cellular membrane will sometimes become solid, while all the other parts are very much softened. The brain and spinal marrow, for example, will become soft; while the pia-mater, which corresponds with the cellular membrane, lying immediately on the brain, and on the spinal marrow, will be perfectly firm. A serous membrane, such as the peritoneum, also the arteries and even cartilage and bone, will sometimes soften. One species of the latter has acquired the name of "*mollities ossium*;" and in rickets, another disease of the bones, the latter are greatly below their natural consistence. After a person has been long exposed to the influence of lead in painting, I have seen the muscles much softer than they should be; and they have been so pale, that you could scarcely distinguish them. You may sometimes push your finger through the parietes of the heart;—so excessively softened do they become. Every portion of the body may become thus softened; and when parts are so, they frequently retain their natural colour; but sometimes they are paler, or redder, or brown, or dark. These variations in colour, occurs both when a part is indurated, and when it is softened. As with induration, so with regard to softening, a part may sometimes be larger than natural, or smaller, and sometimes the bulk remains the same. It is certain that a part may be softened in a short time. The French say a few days, or even a shorter period, will produce a pulpiness of an organ. I believe that an organ apparently sound before, may lose its firmness, and become very pulpy in an acute disease, in a short space of time.

Induration generally is the effect of chronic inflammation; so does softening sometimes arise in the same way; but I have seen persons in tolerable health, without any evident cause, fall into a state of the greatest debility, with complete prostration of strength, and no pulse; and in two or three days, some organ or other has become pulpy. When very rapid, it is not always the result of inflammation, or even of an inflammatory nature; nor when a slow process it is not always inflammatory; for the parts are frequently very pale. What inflammation is there in the bones in *mollities ossium* or rickets? It is not discovered, whether the remedies that will be useful in induration, would be efficacious in a softened state: it is very doubtful, if the parts be reduced to pulp. If a part be soft, there is no deception in it;—it cannot be merely apparent as induration may. It may occur after death; and therefore should you, on examining the body, find a part excessively softened, you ought not to suppose that it was so before death;—for decomposition will soften parts, and they will melt down to a reddish pulp. The brain, without any morbid state, very speedily becomes soft; and if a person has been dead for some time, it is unfit for accurate dissection, especially if it has been exposed to the atmosphere. The fluids will themselves sometimes dissolve parts. The gastric juice will produce

a softening of the interior of the stomach. It will soften the whole coats of the organ, escape into the cavity of the peritoneum, and soften every thing it comes in contact with. This, HUNTER discovered. These appearances arising from the gastric juice, have induced persons ignorant of the fact, to suppose the individual had been poisoned. If softening take place during life, it must of course produce some effect. Paralysis, in most instances, depends on softening of the brain, or spinal marrow. Some cases of fatuity, likewise, depend on a softened state of the anterior portion of the brain. If the liver, lungs, or heart, becomes softened, you have extreme debility. With the exception of parts near the surface, or in bones, you cannot discover the existence of this softened state during life; you only think it probable. Therefore if a part present signs of inflammation, you must treat it as such; for you do not know it is softened. Again, in paralysis you do not know if the part is softened; but should you have symptoms of violent pain at one part of the head, with great heat, and the person gradually becomes paralytic, then there is a *probability* that the part of the brain is softened; but you cannot say positively. You must therefore treat signs of inflammation without regard to softening or induration. If you perceive prostration of strength, you must endeavour to remove it. You do not know whether the parts are softened. In the case of the heart, you may expect feebleness of its stroke, if you examine it at the chest.

We have other changes in parts; such as in *size*. If a part obtain an addition of substance, not dependent on transformation, or new formation, it is said to be "hypertrophied," the part has an excess of nourishment, and therefore becomes hypertrophied. It may either affect one elementary tissue of an organ, or the organ altogether. It will sometimes affect the cellular membrane; and the organ becomes thicker, and very likely denser than it should be. A part may be over nourished, without an increase in the size. The excess may be such as to harden it; so that in one sense, induration may be an hypertrophy. But very often when a part is over nourished, its bulk increases. Should the cellular membrane be over nourished, and indurated also, you will perceive dead white, or semi-translucent streaks along it; portions of it only having fallen into this state of excessive nourishment. Tumors may be produced, which if cut would have the appearance of a turnip; and you would perceive in it greyish fibres. This is the characteristic of scirrhus, it is a question whether this ought to be called a new formation, or whether it is merely excessive nourishment, hypertrophy, and induration of the cellular membrane. Sometimes it will form a tumor in one particular spot; and sometimes this membrane will in this state cut like lard, or like imperfect cartilage. Mucous membranes are often hypertrophied. You will find the villi of the intestines greatly enlarged;—the mucous follicles also; and the whole together much increased. In this state the skin suffers; becoming greatly indurated and thickened. Sometimes the brain will become hypertrophied. I have seen many instances of partial induration, in cases

where all the brain was firm; but there was nothing except a hardening of the organ. However, in this case the brain had become larger than it should have been; and it caused the skull to be larger in its dimensions; and appeared when opened ready to burst it asunder. The convolutions were very large; and this for the most part fatal disease of the brain, is at length produced. The patient was a lad, with a head as large as a man's. His character corresponded with that of an adult; he became apoplectic and hemiplegic, and died. There was excessive size of the organ; though in other respects it was healthy. The spinal marrow has been seen hypertrophied; nerves also, after amputation, sometimes have their ends become very large, attended frequently by a morbid sensibility. Muscles are also seen in this state, principally near the heart; the most common disease of which, is caused by excessive nourishment of a portion,—most frequently the left ventricle. Blood vessels will also become hypertrophied, so that you have vascular tumors filled with blood,—a congeries of blood-vessels. Some of this description have been termed "*fungus haematodes*," by which we understand a combination of this state with a deposition of encephaloid, or brain-like substance. Blood-vessels are frequently hypertrophied accessorially. An excess of nourishment may only go on to condensation, and you may not have an alteration in size, but only of consistence; and the organ which is over nourished partially, may be smaller than usual. Sometimes it will happen that an organ has more tissues than one, and that one tissue will waste; and this wasting may more than counterbalance the over nourishment of the other. The cavity of an organ so hypertrophied, you may perceive either diminished, increased, or sometimes unaltered. This happens in the heart; the cavities of which sometimes enlarge; but sometimes the deposition of matter takes place outwards, and the heart is really enlarged, while the cavities remain the same. Sometimes the deposition of matter takes place inwards; and then the cavities become much reduced in size. Occasionally the consistence remains the same. Sometimes it is increased, and sometimes diminished. The colour is sometimes natural, sometimes paler, and occasionally heightened.

Hypertrophy of a part is more or less of an inflammatory character; as is certainly the case with the heart. You must suppose that excessive nourishment must be the result of excessive action in the part; and that all the natural processes of the heart are going on with great vigour. If a certain operation be necessary to the continuance of nourishment, and it is much increased, then you will have an excess of nourishment. Excessive exercise of a part however, will sometimes cause it to be over nourished. The muscles will gain bulk greatly beyond their natural dimensions. This is (of course) excessive excitement. Chronic inflammation (not acute) causes hypertrophy. The latter, however, sometimes lays a foundation for it. ANDRAL states that hypertrophy arises sometimes from a defect of absorption;—that the absorbents do not perform their duty as they ought; so that an accumulation of nourishment takes place, without undue nourishment being deposited; but this is

but an hypothesis; he denominates it de-assimilation. It means the want of removal of those particles, which are already deposited, and have performed their purpose. When a part falls thus into a state of hypertrophy, it is in a state of great activity; though probably without strength, and without inflammation. Sickly persons are subject to this, in those unhealthy parts of the globe, where bronchocele exists; where the thyroid gland falls into a state of hypertrophy. Such persons are for the most part in a state of delicate health,—sallow, and shrivelled. So in rickets, the extremities of bone enlarge much, and are hypertrophied; but the case is one of debility.—In scrofula parts become enlarged,—the ends of the fingers very much so; the mesenteric glands, and the under-lip, are much enlarged; and yet such persons are not instances of strong and increased vigour. Among the vallies of the Alps, in unhealthy situations, you will find the thyroid gland, the liver, the tongue, the bones, and the hand hypertrophied; and yet the inhabitants are emaciated and pale, and signs of inflammation occur. Hypertrophy will have serious effects on the brain, sooner or later. Apoplexy, paralysis, or epilepsy, will occur. Great suffering is caused by it in the heart. You have palpitation from slight causes, and usually a strong violent pulse;—then dropsy.

The remedies you employ for inflammation, are the usual remedies for hypertrophy. In your *treatment* enjoin rest, low diet, and moderate and repeated bleedings. You are occasionally not justified in this course, however; and then you must support the strength. When this complaint takes place in a person of a cachectic habit, as in the case of rickets, or scrofula, or in the state of cretinism in the Alps, good air and good food are the best remedies; and any thing that depresses the powers may do injury.

Atrophy is the *opposite*, to hypertrophy. You have a wasting. The part sometimes does not become smaller, but thinner than usual. The bulk may be the same; but its texture becomes lighter, and more spongy than in general. It affects the whole of an organ sometimes; but occasionally only a portion, or a tissue; and the part will become thinner and thinner, until at last it is perforated. The wasted parts are usually softer, and often paler than natural. Atrophy is frequently occasioned by inflammation, or by violent irritation. Great nourishment of neighbouring organs will often cause one to waste;—the excessive action in one causing the action in the other to decline. You will sometimes see the wasting away of the testicle supervening on the inflammation which followed mumps. ANDRAL states that, after suppuration near the liver, he perceived the gall-bladder waste away. Bad air,—bad food,—depression of the spirits,—and want of exercise, frequently produce atrophy. As we must consider that hypertrophy is usually from excessive function, so in atrophy there is a deficiency of circulation—action and function. In the treatment of atrophy, the remedies should be as opposite as the disease. The part must not be allowed to rest; but well used if possible; and as far as may be stimulated.

LECTURE XVII.

ORGANIC CHANGES.—TRANSFORMATIONS.—NEW FORMATIONS.—
TUBERCLES.

DISEASED transformations are all similar to those which occur naturally during the growth and decline of a person in health ; or such a structure as formed, as is actually found to be natural to that particular part in some of the series of animals. Cellular membranes in the frame-work of the other structures of the body ; and in the natural state and progress of the body, we perceive that where a part is no longer required, it degenerates into cellular membranes ; as is seen in the thyroid gland of the fœtus. Such a change will take place as a diseased process. A part may be resolved nearly into cellular membrane ; which is an instance of transformation. Sometimes cartilage will by disease become bone ; and it is natural to the progress of the body that it should ; for we have cartilage before bone in the fœtus. One structure is not changed into another, unless that same structure is seen to be changed into that other, at some period of the progress of the body ; or unless that other is the natural structure of the part in some of the series of the animals. There is no disease in which a mucous membrane will become a serous membrane. This change is utterly unknown in physiology, and in pathology ; but mucous membranes may become skin ; and skin may be converted into mucous membranes. Muscles will also degenerate into fibrous membranes. The same part which is a mucous membrane in one animal, is skin in another ; and what are muscles in some animals, are merely fibro-ligamentous substances in another. These changes will occur out of their natural course, in consequence of disease ; and they are then termed “transformations.” Cartilage never becomes mucous membrane. What is cartilage in one animal, is never mucous membrane in another ; and in the changes which occur in the progress of the human body naturally. Cartilage never becomes mucous membrane ; nor in disease, is it ever converted into mucous membrane. Nearly all the structures of the body will waste into cellular membrane ; and it would be hardly correct to assert that they are transformations into it ; because cellular membrane is the frame-work of all the other structures ; and if the various other substances were absorbed, and the cellular membrane remained, and if it could be preserved firm, it would maintain the entire form of the body. ANDRAL considers parts transformed into fat, as merely an instance of inordinate secretion, with or without atrophy of the tissues. If the extremity of a bone has been dislocated, you will perceive, after a long period, that a serous membrane is formed around it. Should a coagulum of blood be effused into the brain, or any firm substance deposited there, it will become surrounded by a serous membrane, or as it is termed a “capsule,” which secretes fluid ; and sometimes, when there is a loss of substance which cannot be repaired by nature, the space is enveloped by a serous membrane. If part of a substance be deficient, not from

external violence, but from a natural defect, its place is often supplied by a serous membrane. When there is a defect in portions of the brain, you will discover in their place a bag containing liquid; which bag is a serous membrane. Apoplectic cells in the brain, are cavities formed by a coagulum of blood, which has escaped; and around which is seen a serous membrane. This coagulum will be absorbed, while the serous membrane may remain, and secrete fluid. Such serous cysts may be formed in almost every part of the body. A serous membrane is a closed sac with a smooth internal secreting surface. It is found in the body naturally; and similar serous sacs are formed by disease, of all sizes from a pin's head, and smaller, to a considerable bulk. They are sometimes placed in juxta-position, attached or unattached to each other; and they are sometimes united to the surrounding parts. They are single, or they are numerous;—solitary, or crowded. There is usually no red vessel to be traced beneath the external surface; and the utmost vascularity is an arborisation on this. The part which surrounds these cysts is sometimes healthy, sometimes wasted, and sometimes indurated, even to the state of cartilage or bone; or they may be more or less fibrous. Now and then these cysts are surrounded by pus, or other secretions; which gives them an additional coat. The cellular membrane around the fibrinous cup of an abscess, becomes very firm, and thus gives it an additional support; and it is the same with regard to these serous cysts;—the cellular membrane which surrounds them being frequently condensed. The internal part of these cysts is smooth, like a natural serous membrane, but it varies exactly as does a natural serous membrane when diseased; for the latter, in a diseased condition, is often rough, granulated, or flocculent within; and sometimes furnished with large caruncles, as it were. In the same way the interior of these serous membranes produced by disease, presents a great variety of appearances. Sometimes there are granules adhering to the interior of these serous cysts, containing particles of bone; and we perceive on the interior surface of cysts false membranes;—that is, fibrin has been poured out there. Thus they have exactly the appearance which is seen in inflamed serous membranes. There are frequently partitions, in these cysts. Sometimes there are prolongations from the interior, running through the cavity of the cyst; and not dividing it completely, but causing it to possess a number of compartments, which communicate more or less with each other.

The *contents* of these new serous membranes vary considerably, as well as their internal surface. Sometimes they contain merely a serous fluid, and sometimes blood; but they may also contain saline matters, fatty matters, tubercular matter, and some things peculiar to cysts. The variety is far greater in the contents of these serous cysts, than in the natural serous membranes, when the latter are diseased. The contents are various in different portions of the same cysts. Some cysts grow from the interior of others,—hanging in them like peduncles; and some are attached by a flat surface. Some have supposed that all new formations are cysts in the first instance; and they have been termed “hydatids;” but this term should be ap-

plied only to a certain animal, although it is employed to embrace not only real animals, but also these serous cysts, which are morbidly formed, serous membranes. The new formations, then, such serous cysts as I have been speaking of, have been denominated *hydatids*, or parasitic animals. One compartment of the latter, will often be filled with a scirrhus substance; another with melanotic, another with encephaloid matter; and we frequently perceive minute serous cysts by the side of scirrhus and melanosis; consequently it has been presumed that these are merely different stages and forms of the same disease. I do not however see this; for when a part has fallen into a diseased condition, various kinds of disease will spring up around it, and in it. Some say that where we cannot find any new serous membrane, but where we perceive the solid substance of scirrhus, the latter was originally nothing more than a serous cyst, filled with indurated substance; that the transverse bands are new serous cysts, which grew in the interior, and hung by peduncles; and which became filled with an indurated substance, until the whole formed one mass; and they say the fibrous bands we perceive in scirrhus, are nothing but different cysts, all compacted in this manner. If you wish, you may peruse the works of BARON and HODGKIN; the latter of whom has, in the *Medico-Chirurg. Transaction*, confirmed the former physician's views. I will not assert that these opinions are altogether correct; but I admit they are ingenious, as far as I understand them.

When you observe minute sacs in various parts of the body, you will recollect they are nothing but new serous cysts. You will frequently perceive them in the choroid plexus of the brain;—from the minutest size, until they become larger than this specimen. (The learned professor exhibited a specimen to his class; and then proceeded with his lecture.)

When a mucous membrane is destroyed, nature very frequently supplies a new one. This is not always a disease. Should a fistula occur by the side of the rectum, or in the perineum, it will acquire a lining membrane of a mucous character. Also in an old purulent cavity, you will sometimes perceive this; and when an abscess takes place in the lungs, and it does not heal, but remains open for a long period, the internal secreting surface acquires the same character. When a new mucous membrane is formed in the lungs, a cavity will sometimes exist for years; and the fistula and cavity will be lined by something similar to a mucous membrane, and in all instances of newly formed mucous membranes,—formed in consequence of disease, although by a restorative process,—you will find them to be of the most simple character. We never see a new mucous membrane so perfect as that of the intestines; it will not possess such villi. In its greatest perfection, it is only similar to the mucous membrane of the urethra, which presents one of the most simple specimens of a mucous membrane; while the mucous membrane of the intestines is one of the most perfect.

Should the skin be destroyed, its place may be supplied by fresh skin. Should a mucous membrane be exposed to the air, it will ac-

quire all the characters of skin. You may frequently perceive this in prolapsus of the womb; for when the womb falls through the vagina, beyond the external opening, and remains there, and is not kept up by art, the mucous membrane of the vagina thus everted, will become pale, dry, and shrivelled,—like skin; and should it remain there, you would have a difficulty in ascertaining the difference between it and the skin.

It is frequently the case that we have a conversion to fibrous membrane, particularly of the cellular membrane, which most frequently undergoes the process. It will become indurated, and form cords; and will also form a continuous membrane of a fibrous character; and often you will perceive it accumulated and indurated into a mass. You may, in these cases, see the fibres; and in the midst of these fibrous bands, cellular membrane not yet quite changed, may be observed. We see tumors consisting of fibrous membrane, or cellular membrane, as yet but imperfectly converted into fibrous. They may be pretty uniform throughout,—homogeneous; or they may be in lobes; or, again, in granules. Sometimes they will become a little vascular, or even *very* vascular; just as we perceive various natural fibrous membranes differ. They are more or less firm, which depends on the change which has occurred, you may sometimes tear them to pieces; and, again, you may reduce them to pulp; but sometimes from their hardness you cannot reduce them to this state. Frequently, the structure around one of these tumors is healthy; sometimes it will be actively inflamed; and occasionally it will waste away. They will sometimes occur after accidental inflammation; and sometimes they will take place without any apparent reason. Occasionally after the cellular membrane has been converted into a fibrous membrane in this manner, it will become much harder;—forming cartilage and sometimes bone.

Transformation to cartilage is a very common morbid process; and occurs exactly as the transformation to fibrous membrane does; and very frequently succeeds it, or is present with it. What becomes fibrous membrane, in the first instance, frequently will become cartilage subsequently. When cartilage is of diseased origin, it is very frequently formed of cellular membrane, in the substance of organs, and often between the different tissues;—consequently you sometimes perceive it under a serous membrane. Should the pleura or pericardium be cartilaginous or ossified, it is the cellular membrane immediately underneath the serous membrane, that is converted into cartilage or bone; and when cartilage is thus formed, it is occasionally in mere little points, but sometimes in patches. This is a frequent occurrence in arteries; for you will perceive spots in the interior of an artery, of a different colour from the rest;—very firm and of a cartilagenous character. These are formed under the lining membrane of the inner coat of the artery. Cartilage is often formed in the same way as a fibrous tumor,—in lumps or hard knobs, here and there; as is very common after chronic inflammation of a serous membrane, when the whole is thickened. Serous cysts often possess knobs of cartilage in various parts, and frequently they

are cartilagenous to a great extent. They are found in the substance of different organs; but I look upon them as being generally cellular membranes, extending from the surface into the substance, and increasing in extent. Occasionally you will have new cartilage loose in a cavity. Frequently you will perceive it in a joint, and sometimes in the veins of the pelvis. It is formed under the synovial membrane in the one case; and under the lining membrane, or inner coat of the vein, in the other. They protrude until they possess a peduncle; which at last becomes so thin, that the whole is detached; and you have loose cartilage in the joints and veins. Some time since, I possessed the veins of a pelvis, in which there were a great number of cartilages, which you could move about from one part to another. I presented this specimen to the University. Conversions to fibrous membrane and to cartilage, often run into each other, so that you have fibro-cartilagenous transformations.

Induration proceeds often much farther than this. The natural conversion of cartilage into bone, is constantly observed to occur in disease. After cartilagenous transformations have existed for some time, you often perceive bone produced. Some say that the cellular and fibrous membranes, and cartilage are the only parts of the body that are changed into bone. That they are *most frequently* converted, is quite apparent. Loose cartilages in the veins of the pelvis sometimes become bone, and are then called "phlebolites," or "vein stones." The deposition of bone may take place in the form of minute granulates. The part is then rough. You find it thus in the valves of the heart; or it may be deposited in the form of scales, as is often perceived in arteries. If you slit up the radial artery, you will sometimes find bone in minute scales, which you may pick off. Occasionally it forms continuous plates. I exhibited sometime since, a kidney which had become a bony cyst. The bone is deposited in a continuous manner, like a membrane; but it would be improper to say "membraneous;" therefore "continuous" deposition is the better term. Occasionally bone is deposited irregularly,—in an "amorphous" way. It will sometimes form very great masses; and you will sometimes, in encysted tumours, discover a mass of bone larger than a walnut, or even two. The deposit is homogeneous; and if you cut it, it has no fibres, or any reticulated portion whatever. It is often harder than bone; and occasionally it possesses rays, or cross fibres, similar to diploe, with an external compact substance. In necrosis you perceive nature's highest efforts in forming bone; for a deposition, to a large extent, takes place under the periosteum; which deposited matter will become new bone, surrounding the old one. Diseased formations of bone, consist of phosphate and carbonate of lime, and some animal matter, just as healthy bone does; but the proportion of phosphate and carbonate of lime varies very much; consequently you scarcely ever find two cases of bone formed by disease, in which the same proportions are discovered. Conversions of structure we term "transformation," when the conversion is into an "analogous" structure; or when the structure which is produced is analogous to some natural structure.

NEW FORMATIONS

Are not parts newly made; but formations of a new character;—that is, new to the body, and of a diseased character. We term these “non analogous” or “heterologous” formations; the chief of which, of a solid consistence, are tubercles, such as perceived in scrofulous cases; melanosis which is a formation of a black substance; and occasionally a yellow substance, termed “cirrhosis.” We have other substances produced of a saline kind, which are unknown to the healthy body. These substances are termed “xanthic oxide,” and “cystic oxide.” Some of the liquid substances of inflammation, such as pus, are known to the healthy body. Serum and lymph in inflammation, may be compared to *analogous* transformations;—they subsist in a healthy body, but their appearance in the inflamed part is unhealthy; at least their *quantity* is. There is a substance produced in inflammation, which is unlike the natural fluids of the body. It is a new formation of a liquid kind; namely, *pus*. You perceive an analogy, then, in all these particulars. In inflammation we perceive the liquid products of the part increased. For instance, from a mucous membrane you have more mucus secreted than is natural; and it is unhealthy in its character. You have serum produced in abundance from a serous membrane; consequently these may be compared to those alterations of structure, in which there is merely a change of size, or an alteration in consistence; and in which the part becomes hardened and enlarged. In some diseases there is a deficiency of secretion; as “ischuria renalis,” and dryness of the skin. These you may compare to softening and atrophy of a substance, where there is a *deficiency* of matter. There are in inflammation liquids secreted, which are foreign to the part. We have lymph constantly secreted, and it is natural to the body, but not natural to the *part*. These may be compared to such transformations as from cartilage to bone. We have also pus,—a new liquid in inflammation; also a semi-fluid substance, in some diseases, like jelly; which we term “colloid” on account of that resemblance. Sugar is occasionally formed in the urine; and the cystic and xanthic oxides. Cirrhosis melanosis, tubercles, and encephaloid matter are new solids; and are termed “non analogous” or “heterologous.” Some of the formations are organizable. Scirrhus is of this description; and so are fungus hæmatodes or encephaloid tumors. *Scrofulous tubercles* may become bone; but more often they are softened down, and pus is seen in them; but they are not capable of being organized.

The word “*tubercle*” is employed by one person in one sense, and contradicted by another. However, there seems to be a wish to limit it to a “scrofulous deposit.” Small tumors in the substance of organs and serous membranes, or on the skin, are termed “tubercles.” The French restrict the word to tubercles of a scrofulous character, which are of a yellowish white colour, generally round, and varying from the size of a millet-seed, to that of a nut; or being even, still larger. If tubercle is firm, but friable,—yet rather hard;

and on pressing it, you will perceive it break down, provided it has not been converted into bone; for then, of course, it is no longer a tubercle. It is of a curdy, cheesy character; and softens down into a substance which is "non-analogous" to the other parts of the body. It softens down into a sero-purulent fluid; and in this fluid you will have the friable tubercular substance, forming flakes within it; and when the matter is let out altogether, then you perceive a curdy substance floating in it. When a tubercle softens down, the liquid has a tendency to escape, just like matter in an abscess. An abscess is formed, that may increase or may remain stationary for a period; and at length, when it is discharged, there is an effort on the part of nature to heal the part. These tubercles not being organizable, will increase by juxta-position, as stones, or any thing else inanimate would.

A tubercle is supposed by some to be liquid at first; and subsequently to become harder in the body. Every thing when first secreted, (I think) must be liquid, for we cannot conceive that vessels will pour forth solids. They all appear calculated to hold liquids, however short a time the matter may remain so, after its escape. It may become hardened directly. I cannot conceive that any thing can be absorbed but liquids. CRUVEILHIER and ANDRAL both state that "*tubercles are at first liquid.*" They become of a yellowish white colour; though at first they are semi-transparent; which affords a farther reason for supposing that they were at first liquid. There may be other minute changes still, which take place at so early a period, as to make it impossible for us to ascertain what those changes are. Some assert that they soften down, by deposition and secretion which takes place around them, and which penetrates and breaks them up. With this I am not exactly satisfied; for we find them constantly softened down in the centre, without any liquid being in them. They may be also externally firm, and have liquid within them; and therefore I should say that the softening of the tubercles is a *chemical change*: and there not being organizable, is another circumstance in favor of this opinion. Had there been a deposition of liquid matter, which enters them, the external part ought to be softened down, as soon at least as the interior; but they usually soften at the centre, though not always for they will occasionally soften in other parts,—particularly on the surface. When they are softened down, an abscess is formed, and the tubercular matter escapes. Frequently *fresh* tubercular matter will be deposited within the cavity, after the discharge of the former contents. While tubercles are not softened down, but are firm, they are composed principally of animal matter, with some muriate of soda, phosphate and carbonate of lime, and traces of oxides of iron; but we do not understand their nature better by knowing of what they consist. Some tubercles have very firm cretaceous matter. You are aware that the same substances are found in all of them; but in proportion as they are firm, the phosphate and carbonate of lime abound. You may find these tubercles in almost every part of the body; but they are most frequently found in the *free cellular membrane*, or in the cellular membrane of which various organs are composed. They are

discovered in the liver, brain, kidneys, lymphatic glands, testicles, the air cells of the lungs, and in the lymphatic vessels themselves. They are found, in *adults*, by far most frequently in the lungs; and next to the lungs, in the small intestines. M. LOUIS, an eminent physician of Paris, and an indefatigable and laborious pathologist states, that in 350 *adults*, with tubercles in the lungs and various other parts of the body, he found but *one* whose lungs were free from them. The tendency to them in the lungs is very great, as is demonstrated by the calculations of M. LOUIS. After the small intestines in the adult, the mesentery is next in the scale of frequency of this complaint; consequently all the other parts are at a very great distance with respect to frequency. The intestines and mesenteric glands stand at a certain distance from the lungs in point of liability to tubercles; but all other parts are even at a greater distance. Scrofulous tubercles are less commonly found in the liver, than any other part; but they are not unfrequently discovered in the spleen, especially of infants. It is very common for other organs besides the lungs in *infants* to contain tubercles, while the lungs do not contain any; which is the very reverse of the case in adults. You certainly more frequently find many organs affected in infants at once, than you do in the adult; for nothing is more common than to find tubercles only in the lungs of the latter, as I have before proved from the researches of M. LOUIS. The proportionate frequency of tubercles in different organs in infants, is not the same as in the adult. The frequency does not pursue the order of the lungs, intestines, and mesentery, but follows quite a different rule. They are far more common in the spleen, and in the mesenteric glands, (or as some term them, the mesenteric ganglia) and in the bronchial ganglia. They more frequently affect these three parts, than they do the lungs; and they are far more frequently discovered in the nervous centres,—the brain and spinal marrow,—of infants, than of adults. In the *fœtus* they are rare during the first three months; but about the fourth year they become far more frequent, although not numerous; while from the fourth to the fifth, they are found to be very frequent, and attack many organs at once. LOMBARD states that so frequent are they in children at this time of life in Paris, that three fourths of them die from tubercular disease; or at any rate there is a tubercular deposit discovered after death. After this period of existence, they become less frequent, until the period of puberty; although they are still more numerous than they are prior to the fourth year. It is ascertained that children are more free from tubercles in the second year of their lives, than at any other time before the fifth year.

DR. CARSWELL has executed some drawings of tubercles in their various stages, to which I refer you.

LECTURE XVIII.

NEW FORMATIONS.—TUBERCLES.—CANCER.—SCIRRHUS.—FUNGUS
HÆMATODES.

TUBERCLES appear later in men than they do in women. They are

said to occur in the former from the age of twenty-one to twenty-eight; and in the latter before the age of twenty. They are not confined to the human species; but they are constantly discovered in brutes. In this country, and in France, monkeys generally die from disease of a tubercular nature; and tubercles are found in a large number of organs. They are found in hogs, horses, cows, rabbits, hares, birds, and sheep. In Paris it is said that a great number of parrots die of tubercular disease. Monkeys and parrots come from warm climates, and are affected by the vicissitudes of such latitudes as those of England and France. It is said that tubercles are not found in dogs. The predisposing cause of tubercles appears to be a want of proper nutriment, and a want of a proper external temperature. Exposure to cold and moisture, and especially alternations of temperature, perhaps, will produce tubercles; and when disposition is produced, it becomes *hereditary*: as you will perceive with children, who, with every comfort around them—fed well—clothed well, yet will become, at a certain age, the victims of tubercular disease. Thousands die of tubercular disease in consequence of exposure to cold united to moisture, and want of good food, and in all probability from changes in temperature; but the effect of these may be much diminished by good food—not mere stimulants, such as spirits and wine: these will not answer the purpose. It is good nourishment, such as keeps up a slow but constant fire within, and does not merely give a temporary excitement, which constantly increases the injurious effects of a subsequent low temperature.

This tubercular deposit acquires an enveloping membrane, or even two, but occasionally you perceive none at all. Sometimes the deposit takes place in a diffused manner, and it is then said to be infiltrated; but in the lungs you see the tubercular deposit surrounded by a membrane. You will see a regular capsule; and in the interior of this membrane you frequently find a softer one, which may be easily peeled off, while the external membrane is often pretty tough. When it is formed, a tubercular deposit may remain for years without injury: but if the deposit be very great, it becomes a source of irritation; and if a great quantity be deposited in different parts, and frequently indeed where it is trifling, the surrounding parts fall into a state of irritation. The tubercular substance softens, and the process I have already mentioned takes place. When the matter is discharged, the cavity is for the most part irregular: it is not of a definite shape. The parieties usually grow harder and harder, and you often see the tubercular substance not entirely discharged, but adhering to the sides rather firmly. Such cavities often have sinuses communicating with the external surface, or with the large bronchial tubes. Should the tubercle have been near the surface (which is common in the case of the absorbent glands) the ulcer possesses generally a flabby edge, which is turned inwards: the very reverse of what occurs when an ulcer is cancerous, and it frequently heals up quite well. In the lungs we sometimes see such cavities heal. As far as the deposition in these tubercles is concerned, it causes no pain: but the irritation around frequently does; and when a tubercle is near the surface of

the lungs, the adjacent pleura falls into a state of inflammation; there is more or less pleuritis, and the person has pain in the side. When tubercle is producing much inflammation around, there will of course be the usual signs of inflammation. In the case of glands of the neck, when active inflammation is excited, there is considerable pain. The disposition to form these tubercles is termed a "scrofulous habit of body;" and we say the individual is labouring under scrofula, or struma, when suffering under such deposits. Persons disposed are distinguished by a fair and fine skin, with fine soft hair, a dilated pupil, and a large upper lip; and it is seen that when the internal parts labour under scrofula, that the extremities of the fingers and thumbs, and the toes, become enlarged. This often occurs; and in a great number of cases of phthisis, and in scrofula of many other parts, such as the liver, and the mesenteric and lymphatic glands, the extremities of the fingers become enlarged. I think that a faint scrofulous inflammation attacks the last joint. There are numerous persons, however, who though scrofulous, have not a fair skin or soft hair, but a dark complexion; but still they look pale and have dilated pupils, and a tumid lip. They may be pock-marked, but those particularly disposed to scrofula have a fair skin, soft hair, a pulse disposed to be quick, and elongated fingers. When tubercular matter is deposited, and the disease has become established, the ends of the finger will enlarge; so that the nail is prominent, like an acorn. This affection may be hereditary in a large number of cases, and it attacks individuals of various ages, but especially those in the early stage of existence.

SCIRRHUS.

Scirrhus is seldom seen in the young, and rarely before the middle time of life; but usually after the middle period of life. There are two changes in scirrhus; transformation and new formation. It appears that the cellular membrane of the parts affected becomes very much indurated, and is changed into fibrous membrane; but in the midst of this there is, certainly, a new deposit of a particular description. When scirrhus occurs, you observe a firm, very hard, irregular mass, of a light greyish colour at first; and when cut into thin slices it is semi-transparent. Sometimes you will perceive a specimen in which there are a large number of fibres, traversing in different directions; and between these there is a substance less white than the rest. The deposition of tubercles is inorganic; not a new *organization*, but a new *deposition*. In scirrhus there is a transformed structure; and also an inorganic substance, deposited between the fibrous portions, which run in different directions, forming *septa* divisions; and you perceive they are opaque, and paler than the others—of a more dead white. In fact a scirrhus tumour, like the one I have just been describing, cuts exactly like a *turnip*: for in the latter you perceive fibrous septa running in various directions, and a substance between them is softer and less white. The septa. in scirrhus, run in every direction; and occasionally are seen to form regular cells. The proportion of less hard substance between the

fibres, is very various; so also is the mode in which the fibres are distributed; so that you may have a mammary tumour sometimes, at other times a pancreatic tumor, and occasionally a tubercle;—a tumor similar to a mamma;—a tumor similar to a pancreas; or something like the tumor of scrofula,—a tubercle in the common acceptance of the term. The less hard substance, at last, undergoes the same process as a true scrofulous tubercle; it softens down into an ichorous fluid, somewhat like jelly or gum; and the process here begins, usually, in the centre; as is the case generally in scrofulous tubercles,—the centre having been the hardest part. The skin above becomes puckered or retracted; and its colour also becomes altered, and assumes a leaden or livid hue. At first the whole tumor is moveable; but it will not allow you to place the whole of your fingers under it; nor will it permit the edge to be turned up; but after a time it forms adhesions to the neighbouring parts, and then becomes immovable. Ulceration takes place, just as it does in the case of a scrofulous tubercle; and when it commences, that state is termed

CANCER.

Scirrhus is the first stage,—that of induration; and cancer the second stage,—that of softening and ulceration. In this species of ulcer, you will perceive the edges much raised, irregular, and turned out, the surrounding cellular membrane undergoes the process of suppuration. Occasionally you will see a sort of hard gristly fungus sprouting up from the ulcer. The centre of such a fungus is deep; the discharge very fetid; and much irritation is produced. Sometimes, however, you have sloughing instead of simple suppuration; and occasionally nature relieves herself from the whole mass. The scirrhus tumor has not formed adhesions to the surrounding parts; but it sloughs out. The lymphatic glands, to which the absorbents from the tumor run, usually become contaminated. They generally become indurated, or scirrhus; and undergo the very same process as the original part. This disease generally, in the first instance, affects those parts that are not necessary to life. It affects glands, the functions of which have been interrupted, or have never been performed; particularly the breast, when a woman is past child-bearing, or has not had any children; also when there is any predisposition; and especially those parts which may have suffered in consequence of mechanical injury. It affects the uterus, the ovaria, the testes, and the thyroid gland; none of which parts are necessary to life. Many women have had cancer arising from a blow on the breast. The thyroid gland is a part not necessary to life. When cancer has attacked the parts just mentioned, it affects other parts secondarily; and then we find that the lungs, the liver, the omentum, the mesentery, the spleen, the pancreas, the brain, the medula of the bones, and the skin may become affected. Occasionally it will affect these parts primarily; but in general it only affects them secondarily. Should cancer affect the skin primarily (and it does sometimes), you will see at first a sort of wart, which becomes cancerous; should it affect the skin secondarily, then you will generally have a tubercle; a little hard

lump, for example. When the breast has been affected with cancer, the skin in the vicinity will become the subject of tubera; little hard scirrhus lumps. We certainly find it very frequently affect the cardia, the pylorus, and the rectum; yet although it does affect these parts primarily, it is certainly not so frequent here as in those particular organs that are not necessary to life;—organs whose functions may cease without injury to the body at large. When it affects the alimentary canal, it attacks particularly certain portions, which forms divisions of it. It affects the lips, which are the first part; then it will affect next to them the fauces, and the cardia; the lips forming the commencement of the mouth, the fauces of the throat, and the cardia of the stomach. Then it affects the pylorus, the commencement of the intestines; and again it affects the rectum, which is the termination of the alimentary canal. Generally it is the openings of the cavities that are attacked. When the breast has been affected by cancer, the bones are frequently affected secondarily. They become flexible, and easily break; and the fracture presents a bloody mass in the medullary cavity. The affection spreads around; so that the muscles, cartilage, and bone, are all blended together into a cancerous mass.

This disease is, from its earliest stage, attended with intense pain; which pain is sharp, lancinating, and does not depend on the inflammation, but will occur where you cannot discover any inflammation. When the stage of irritation has commenced, in which you have inflammation, sloughing, and suppuration, the irritation is so great, that the whole constitution suffers very much. The skin acquires a peculiar, sallow tint; a sort of pallid, yellowish, straw colour; and the state of the body is certainly cachectic. ANDRAL says that this sallow appearance is owing to a change which the blood undergoes; the constituents of the latter being absolutely altered. Medical men are led by this sallow appearance, to suspect that the patient is labouring under some malignant disease. This has been termed "cancerous cachexia;"—cachexia; meaning a bad habit of the whole body. If this disease should slough out, the patient may recover; but that is a rare case;—and unfortunately if the practitioner remove the disease, the relief is frequently only temporary; for in many cases the disease appears again in the same neighbourhood, or in an opposite part. It therefore would appear that, in a great number of instances, these cases depend on some constitutional tendency; and all that art can effect, is to remove those parts that have fallen into a diseased state. But still the tendency remains in the constitution; and the individual will generally shew the disease again in some other situation, or around the spot where the operation was performed. This disease may be hereditary, like scrofula;—that is, the disposition to it. I am not acquainted with those circumstances which give a predisposition to the disease. The circumstances which predispose to scrofula are evident. Cancer may be hereditary, for I have known many individuals die of cancerous disease; one of whose parents had died of the same complaint.

FUNGUS HÆMATODES

Differs from scirrhus and cancer, inasmuch as it affects the young rather than the old. This affection is called also "encephaloid disease;"—*encephaloid* because the deposition is not hard, like scirrhus; but to some extent resembling the brain; and it has been termed "fungus hæmatodes," because when it arrives at the stage of ulceration, a fungus sprouts out, of a bloody character; and on cutting it, you perceive large distinct cells, filled with effused blood. It is therefore like the brain in some parts, and bloody in others; for in the cells in which the deposition occurs hæmorrhage constantly takes place; so that blood is effused there, and a coagulum forms. In this disease there is a great disposition to hæmorrhage; but the deposition itself is an opaque, whitish, homogenous substance, similar in colour and consistency to cerebral pulp. I have opened many brains and livers, which have contained tumors about the size of walnuts; which tumors on being cut, presented the same appearance I have just described. There is frequently nothing like the firm fibres of scirrhus;—no distinct white bands ramifying in the tumor. When exposed to the air, it softens down just as the brain does; and it may be washed away by exposing it to a stream of water, leaving a filamentous structure, which has contained the opaque brain-looking substance. But then this structure is not hard, like scirrhus; but very fine and delicate. The consistency of encephaloid matter varies, from that of a soft custard, down to that of the firmest part of the brain when fresh. One portion of the tumor is sometimes pinkish; and some portions will be as red as a clot of blood; but if the blood have been effused in great quantity, then you will see regular coagula. You will often find various portions, differing in colour, size, and consistency; and some are cartilaginous, so that there is, as it were, a double formation—a double disease; scirrhus being united with the melanosis. Occasionally you will perceive bony particles; and sometimes it occurs that portions of what is usually a filamentous membrane, become converted into an indurated substance like cartilage; and occasionally there are little deposits of bone; for many of these structural diseases are often blended together. You will now and then see portions of it in a regular cyst, instead of fine filaments containing this brain like matter; and sometimes you see portions similar to the white of boiled eggs,—coagulated albumen. This deposit, as it grows, softens down, and generally first in the centre, like scirrhus, and a scrofulous tubercle. When it softens down, cavities become discernable containing blood; and on washing this blood away, you will perceive filaments or shreds floating in the cavity. If a portion be near the surface, the skin becomes discoloured; and the tumor adheres to the subjacent parts, and increases in size; or should the tumor be situated within, the serous membrane above it grows thin, until it gives way. Consequently you may have the tumor ulcerate through the surface; or you may have a serous membrane within give way. When the tumor ulcerates, a fungus shoots forth; but

it is not firm, like the fungus of scirrhus; but soft and very easily torn; and it bleeds very much, is irregular, and is of a dark red colour. If the fungus is small, it is exactly like the red soft polypi, which grows from a mucous membrane. It grows very rapidly, and pours forth a fetid sanious fluid; and individuals die, not from the irritation of the tumor, but from hæmorrhage. I remember a person who had a fungus, as large as a walnut, in the interior of the bladder. It did not cause pain, or produce any irritation to the constitution; but it bled in spite of every thing that could be done to stop it. The discharge was not only bloody urine, but pure blood; and at last he died. Hæmorrhage from such a fungus is frequently very copious; and occasionally portions will slough.

This disease will affect all parts of the body. It may affect the testicle; and should it do so, it is termed "soft cancer of the testicle." It will affect the breast and the eye; and indeed is very common in the eye of children. It will affect the ovaria, the uterus, the spleen, the pancreas, the liver, the urinary bladder, the brain, the mesentery, and the bones. It is continually occurring in the extremities; and the absorbent glands become tainted, as they do in common cancer; and when you make a section of the affected glands, they present similar appearances to those of the original tumor. But it is said they never send forth a fungus. In the neighbourhood you frequently perceive small tubera,—circumscribed, but without a capsule; varying from the size of a pea, to that of a walnut; of a pale greyish colour, and firmer than the original tumor; but they are nevertheless the same affection. This disease commonly affects other organs secondarily; so that when the breast is affected, patients become the subjects of cough, and pulmonic disease; and if you open them, you find similar tumors within. Some assert that those organs which are affected secondarily, are never affected primarily. It is common for many organs to become affected at once; and the disposition to the recurrence of this disease, when it has once appeared, is so great, that Mr. TRAVERS says persons have never been known to survive *four years*, after he had operated on them to extirpate the disease. The patient's constitution becomes impaired; and, earlier than in scirrhus, there is the cachectic look. Generally the patient becomes emaciated; but sometimes there is not any irritation; and you may see a patient die of this disease in the stomach, without any pain; and often without a suspicion being entertained of the nature and seat of the disease. Scirrhus is almost always attended with violent, deep, lancinating pain; whereas in encephaloid disease, there is very little,—sometimes not any, and little or no irritation. A tumor of this sort is very soft; externally it is singularly smooth and equal; and it gives you the idea of fluctuation, which has deceived many in cases of this description. Some have supposed it was a formation of fluid; and have introduced the lancet into it, which has occurred frequently;—I presume from its similarity with regard to touch, to a tumor containing fluid. Frequently, for a length of time, the part will not be discoloured. It is soft, and elastic, which induces some to suppose there is fluctuation. When

the tumor is removed, it is usually more or less round; and it differs from scirrhus inasmuch as it occurs at an earlier period of existence. In a kidney taken from a child six years old, some time since, there were several portions of disease of this nature. It appeared to be a mixture of various diseases. Some portions were scrofula; some were of scirrhus hardness; and in some there was fungus hæmatodes. I do not know what gives a disposition to this disease; nor do I know whether it is hereditary. It is probable there is hereditary disposition, exactly like the disposition to scirrhus. You should always recollect that there is no pain at first; as there is in scirrhus; and that it affects the opposite period of existence. Some believe it to be a mixture of scrofula and cancer.

LECTURE XIX.

**MELANOSIS.—KIRRONOSIS.—ANGEMIA.—MORBID APPEARANCES.—
TREATMENT.—CHLOROSIS.—SYMPTOMS.—TREATMENT.**

In melanosis, or melanodes, there is deposited a mass of black substance, giving an unctuous smooth section. It is either uniformly dark-coloured, or possesses certain shades, and appears mixed up with patches or streaks of a paler-coloured substance. It is sometimes deposited in lobules, or a mass; and occasionally in plates. If you macerate a mass, the black portion is separated; and this readily mixes with water, and will stain the hand, and also linen and paper, as Indian ink will.—It has neither taste nor smell. It resembles the pigmentum nigrum of the eye, or the dye of the cuttle-fish and the colouring matter of the hair, of the cutis of nerves, of some parts of the brain, of the bronchial glands, or of the ganglia of the lungs of old people, and the placenta of some *carnivora*, may be similar. If you wash it out with water, the structure which is left after the separation of the black substance is circumscribed, or more or less firm. What I mean by saying "circumscribed," is, that I am supposing you wash a piece of an organ that is healthy, and another piece that is diseased; and then the latter will appear, as I have described it, different from the rest of the organ. There are shades of colour, although the character of this disease is blackness. You will perceive it brown, and even of a yellow hue, as well as black. The masses or depositions are of all sizes, as well as of all shades of colour. Now and then a black mass of this description, is supposed to soften down; but such an occurrence must be rare. This substance is entirely inorganic. Like tubercle, it never becomes organized; but it is unlike a tubercle, for it rarely if ever softens. A dark coloured fungus will sometimes arise from the part in which this black deposit has taken place, and thus far it is like fungus hæmatodes. The glands connected with the absorbents of the part, will become affected. Occasionally you will have melanoid, tubera, or tubercles,—melanoid deposition in remote organs; consequently

the disease appears, like fungus hæmatodes or scirrhus, in a primary or secondary form; commencing in one part, and being found afterwards (though not in so advanced a stage of course,) in distant organs. Thus there appears an analogy between this disease and fungus hæmatodes. There is the same order observed with respect to the organs which are primarily or secondarily affected. When you perceive an absorbent gland, or a ganglion affected, you might commit an error if you supposed it was a mass of melanotic substance. The absorbent glands often have this matter deposited in them, and they become blackened. Thus it is a gland blackened with a secretion of melanotic matter, and not a real mass of new matter, that is there. If you did not recollect the part you examine to be one in which an absorbent gland actually lies, you might often mistake a mere blackened gland, for a mass of this peculiar melanotic matter. This disease does not take place in early life, like fungus hæmatodes; but it rather resembles scirrhus; and does not occur until the person has passed the middle age of existence.

I understand it is most frequently found in horses. It is said to occur most frequently in those of a cream colour, and those of a spotted grey; and oftener in horses in the south of Europe, than in England. You will perceive it also in rabbits, dogs, cats, mice, and rats. It attacks many animals; and it is said that it attacks all parts of the body, but principally the lungs and liver; and so great are the masses sometimes discovered in the horse, that they have now and then been found in the abdomen to weigh thirty pounds. In one case in the human subject mentioned by DR. HALLIDAY, it existed in subcutaneous and inter-muscular cellular membrane;—in the cellular membrane under the skin, and among the muscles; in the pericardium, the pleura, the ovaria, the sternum, and the bones of the cranium. Occasionally this substance is enclosed in a cyst. Most other deposits have a cyst; but it is only sometimes that this substance is found so involved. Now and then, instead of being collected into a mass, it is completely diffused;—not merely in small scales and plates; but generally diffused along a membrane, mucous or serous; and when this is the case, it really is deposited not on the membrane itself, but rather in the cellular substance immediately underneath it. It is the cellular membrane that is liable to become cartilage and bone; and which is peculiarly liable to other diseases. This disease is seen, too, in new membranes of the body;—that is, false membranes; for when a serous membrane has been inflamed, or has had lymph deposited, and thus has become organized, then the false membrane becomes cellular membrane; and these new false membranes are occasionally perceived to contain a melanoid deposit. Sometimes it is said to be found on the surface of a serous membrane, instead of underneath it; but I have never seen this. It is probable that the parts around do not undergo any change, except softening; for around this black deposit, the really natural parts of the body are found softened; but usually that is all, unless this disease co-exists with another; and it is a very common occurrence for it to co-exist with scirrhus, with fungus hæmatodes, or even with tubercles. But

where it exists alone, and it is not conjoined with any other disease, it seems itself to occasion nothing more than a mere softening of the surrounding parts. Sometimes this same substance appears to exist in a fluid form. Sometimes we have a cyst filled with a liquid perfectly black; in which no difference has been seen from the mass just mentioned, except that the one is liquid and the other solid. When this matter is discovered in a fluid state, there is every presumption that it was so formed originally, and not softened down; because the usual course of the disease is, however long it may last, for the mass to remain solid. Should you perceive black fluid contained in a cyst, you may generally conclude that it has been found with a disposition to remain fluid.

It is common to see, on certain serous membranes (particularly the peritoneum towards the pelvis, the uterus, the bladder, and the rectum) spots of melanosis,—black spots, which appear to be analogous to this affection. These are very innocent deposits; and occasionally we perceive very extensive superficial depositions,—that is, diffused; and in persons, too, who are known not to have suffered by such circumstances. If a mucous membrane has been ulcerated, and has healed, (which is common in the intestines) the cicatrix is often blackened more or less with a deposit; which is not exactly black, but merely greyish,—occasionally brownish, and sometimes yellow; and this we see in the skin, after an eruption or ulceration of various kinds. Should there have been an eruption, then the skin will sometimes remain black, but more frequently brownish; and should there have been an ulcer, it is very common for the lower extremities to remain of a dark colour. Occasionally they will be black; but more often of a brownish yellow. These may be considered various shades of a similar deposit. The same is perceived in the brain, after paralysis from effusion of blood into its substance; and a deposition of this description is seen in the mucous membrane of the intestines, after chronic diarrhoea. Sometimes you see points in the intestines, not so large as a scale, of black deposit; just as if a very fine powder had been sprinkled in the finest way on the surface of the intestines. You will occasionally see such points extensively disseminated. When I first saw this, I thought it was some dirty soot; but I could not wash it off. It is not exactly on the surface; but you perceive it through the surface, and you cannot rub it off without destroying the membrane itself. I have seen the centre of the tongue of a jet black, without an unhealthy condition of the rest of the organ;—without sordes or other symptoms of a dangerous character. I think there is a very curious analogous circumstance to this; although I have never seen it yet. There are twenty cases on record of white persons who have become black. Occasionally a change will occur over the whole of the skin; so that a white person shall become entirely black. I have seen portions of the arm become black. Some suppose, and so do I, that this is a melanotic disease on an extensive scale;—that melanoid substance is diffused solely on the skin, and in the most extensive manner.

MELÆNA.

Individuals sometimes discharge from the stomach, or the intestines a black liquid, which by old authors is termed melæna, or the black disease. This stuff, when perfectly black, or when it happens to be discharged pure, without fæces, has no smell; and it is said that a collection of black liquid precisely similar has been found in the peritoneum. DR. PROUT has seen two or three cases, in which the urine was quite black,—not bloody. The black secretion of the bronchia, in some individuals, depends perhaps on the same dye. In yellow fever, persons vomit stuff which is termed “black vomit.” It is tasteless, and some have indulged in drinking it. Some have put it in their eye, to discover if it is acrid. Others have made it into pills, and taken several in the course of a day; and they all state that it is precisely similar to this melanotic matter, which is deposited in solid masses,—tasteless, inodorous, and innocent when taken internally. With regard to this discharge from the intestines, you may have it entirely black, or a little reddish; so that you perceive a slight hue of red in the black; and you may have it of various kinds, down to absolute blood. I believe, when these discharges occur from the alimentary canal, that at any rate they are blood which has undergone a certain change. This black discharge, as it comes away through the intestines, produces no pain, in general no irritation, and nothing but exhaustion; and like hæmorrhage, from these parts, it is remedied by small and frequent doses of oil of turpentine. I believe we must consider black vomit as the same;—a very mild substance, nearly like blood, except in difference of colour. I do not pretend to know what change it has undergone; but the black urine; the black discharge from the intestines; the blackness of the skin, when an individual is converted from white to black; partially or generally; the blackness on the peritoneum; the blackness of the mucous membranes; the blackness of the cicatrices in various parts of the body; and black masses and substances in various organs;—all appear to be the same disease in different degrees; and it also would appear to be merely blood which has undergone a slight change. When analyzed as taken from the horse, it consists of the elements of the blood,—fibrin, albumen, &c.; but nearly one-third is a carbonized substance,—probably altered cruor. Every thing else is in far less proportion. In the cells of the ovaria we frequently see a black substance, and often blood; and all shades may be traced between the two; so that blood here appears changeable to this black substance. Melanosis may inconvenience an individual because of its bulk, its pressure, and hardness; but independently of this, the disease is not one of malignity. Yet you should recollect that it is continually united with malignant disease; for very frequently, in a mass of fungus hæmatodes, you will see a black deposit. But this is not extraordinary, when you consider that in fungus hæmatodes there is blood effused into the different cells. It is also seen in scirrhus, as well as encephaloid disease; and you continually see scirrhus, melanosis, and encephaloid disease in one mass.

There is another disease, in which a substance is deposited in spots and patches, in the substance of the viscera, or on the skin, or upon different membranes. It is of a yellow colour; and Lobstein terms it

KIRRNOSIS.

It seems particularly to affect the membranes of the head, chest, and abdomen; and when jaundice occurs in young children, ANDRAL thinks it is really this particular disease, and not true jaundice. There is a species of jaundice which affects young children, and which is removed by castor oil; and it would cease of itself in a day or two, if no remedy was applied; but besides that, there is sometimes jaundice, the disposition to which is congenital; for many families have died of it in succession. Some children who are said to have jaundice are supposed really to present cases of this yellow disease.—LAENNEC terms it “cirrosis;” and he states that it is deposited in masses or layers, or sometimes in a cyst, such as we now and then see in melanosis; and he conceives that the hard tuberculated liver as is seen in gin drinkers, is an instance of this affection. I have seen the liver of a child who had scrofulous tubercles of the lungs, contain a cyst filled with this peculiar yellow matter. It is a rare disease unless the small brown tubercle of the liver be it. I presume it is as innocent an affection as melanosis. What I said respecting transformations, is applicable to these new formations. You see the diseases of consistence and size, and the diseases of all transformations, all blended together; just as you see the diseases of new formations; and not only so, but you find in the same persons new formations, and diseases of change of consistence and size, continually blended together. Inflammation, scrofula, changes of consistence, changes of size, transformations, and new formations, are diseases which will affect any part of the body. They may not affect any one part, but may be situated here and there. There are diseases which may be denominated *general*: not from their being common to any part of the body, so that they may affect an individual to day in one part, and another individual in a different part to morrow—(which is the case with inflammation); but there are some diseases which are general in another sense. They appear to affect the whole body at once. I do not know whether these general diseases have their origin in some one spot; but so far as I have observed, they exist more or less throughout the body. One is denominated “bloodlessness,” or “anæmia;”—another scurvy. I do not know whether these diseases spring from the state of one part of the body more than another; for we perceive an individual bloodless throughout, without any local affection. He becomes pale and blanched throughout, and very weak; but we cannot say that one organ is labouring under the affection, more than another. In scurvy, the whole mass of blood, as well as the solids, is affected; consequently these are general diseases; or, in another sense perhaps we should term them “universal” diseases;—those being properly “general,” which are able to exist here or there. There are other

diseases which may themselves be local; but which produce effects so universal, that if they have a local seat, it is at one spot in one person, and at another spot in another person. I refer to fever; or I may say fevers; for there are various kinds of them, to say nothing of eruptive diseases. I shall prefer considering fevers as universal diseases; though some persons think differently. There are also other affections which consist of a mere alteration of function, so far as we know;—there being no organic disease, at least in many cases. It is possible that diseases may be more or less structural; but I believe that some diseases are entirely functional. I have frequently opened persons who have died of diabetes; and the disease appeared entirely functional. Also in cases of insanity, there has been no disease found in the brain; and it appears to have been wholly functional. The disease is corporeal, just the same; but corporeal is not structural; for a disease may be corporeal, and yet merely, functional; there being no change of structure. Other diseases are entirely mechanical. Hernia is one of these. Some diseases arise in consequence of another animal having taken up his abode within us; as is the case with worms in the alimentary canal, and various insects which exist in the integuments of the body. Thus, general diseases are those which attack any one part; universal diseases are those which appear to be diffused throughout the whole body, without any particular locality;—and functional diseases are those which affect particular functions,—not being organic at all; but affecting only special parts. Diabetes as a disease of the kidney can affect no other part. Insanity can affect no other part but the brain. Spasmodic asthma is also often a functional disease. I have opened individuals who have died of or with this disease; where no trace of it could be found. You may have mechanical affections likewise, and the existence of parasitical animals,—parasitical diseases. One of these universal diseases is

ANÆMIA.

I have no doubt that the fault, in this disease, resides in one particular part in the function of forming blood. This term, “anæmia,” explains itself;—the want of blood. Blood is present, but there is a great deficiency of it. When a person is affected with this complaint, we can state *a priori* what the symptoms must be;—great debility; the skin of a deadly pale wax-colour, and soft. In the next place, the white of the eye appears bluish; the inner part of the mouth is colourless; the lips are exceedingly white; the tongue is pale; the pulse is about 80 in general, but exceedingly feeble, and very easily excited. The least emotion,—the least stimulus,—the least corporeal movement, produces great momentary acceleration. Respiration is also hurried on the least exertion; the appetite is bad; and some say there is continual thirst. There is cedema of the legs at last; and finally sweating, which is induced by great debility. The colour, after death, is much the same as in life; for when this disease is intense, persons are really corpses in appearance while living. In certain cases of the disease, the stools have been seen to

be dark coloured and fetid. The appetite is bad; and at last almost every thing taken is vomited. When persons have been examined after death, it has been observed that there is universal internal paleness, softness, and want of blood; with more or less excess of fluid in the serous membranes;—a fact corresponding with œdema of the legs, and with sweating in the last stages. This disease formerly appeared in a peculiar form in France, to a great number of men in a coal pit; and was preceded by termina, retching, green stools, thirst, and wasting, for ten or twelve days; and then the disease appeared in the form just described. It continued for six or twelve months, and then terminated in death. This may be termed an endemic disease, from having been confined to a particular mine, and to a particular gallery in it; as though it arose from some effluvia. Dr. COMBE mentions a similar case. The person was a corn merchant's son; and no evident cause for the disease was found.

The first remedy given to the Frenchmen was mercury, which did much mischief; for we have here a condition of the system in which mercury is highly injurious. On opening a patient, the internal vessels were found almost bloodless. Mercury was discontinued; and carbonate, or rather oxide of iron, was given in considerable quantity, with opiates and tonics, and good food; and the patients recovered. They exhibited signs of improvement in eight or ten days; and from that period the greater number of patients recovered. At Dunkirk, a similar case occurred, and the same treatment was adopted with the same success. It was found that a relapse was very usual; and therefore the remedy had to be continued for some considerable time. Dr. COMBE employed both the phosphate and carbonate of iron; but he does not mention the dose, nor the length of time he gave it; but mercury was also given, and a great variety of other drugs; so that a fair chance was not given to the iron.

CHLOROSIS

Is a disease very similar to the last; and is common to young women, either about the time or soon after they ought to menstruate, or shortly after they have begun to do so. Occasionally it occurs in individuals more advanced in age; and similar affections will take place in young men. Strictly speaking, it is not chlorosis in men; for we say that one of the symptoms of this complaint is an absence of the menses, or their not appearing at the proper time of life; or their retiring just after they have presented themselves. These, of course, are not the symptoms in men; and therefore we cannot say to quibblers,—“it is chlorosis,” when we see it in men. But let us consider things as pathologists, and we shall see that men will sometimes fall into a state of anæmia and debility, very much like chlorosis in women. When a woman has this disease, there is a general paleness, swelling of the face and ankles, weakness, a great sense of tension in the legs and feet, dyspnoea, palpitation, the pulse either quick or easily rendered so, and of course a deficiency in menstruation. These symptoms are for the most part exactly the symptoms

that occur in anæmia. I have no doubt the pathology or proximate cause of these two diseases, is very similar. In women who are affected with chlorosis, the alimentary canal is frequently very much disturbed; which was observed in the cases of the Frenchmen who were attacked with anæmia. When women have chlorosis, there is occasionally a great derangement of the stomach; or if the cause of hunger be looked upon as cerebral, we must say there is a derangement of mental feeling. They will wish for all sorts of things,—chalk, sealing-wax, brown paper; and they are not always the worse for eating them; for their stomach manages them very well,—there is such a departure from a natural state. They are often costive; and they will sometimes eat the most filthy things. They will receive pleasure from offensive smells; and long to eat what they do eat, in a privy. This is, however, an intense state of the disease.

The same remedy is beneficial in this disease as in anæmia, viz. iron. I am sure that carbonate of iron, is better than any other preparation; and with that you will generally succeed. You should not treat this disease by bleeding, or profuse purging. The bowels are only to be maintained in a regular state. You must not permit a collection of rubbish to be formed in them; but beyond that, purging will do mischief. All evacuations were found to do injury in anæmia in France; and I know from my own experience (which is extensive in so prevalent a disease as this) that iron is by far the best medicine. Individuals will lose their difficulty of breathing,—lose their puffiness, and will soon gain strength and colour, under this treatment. When I come to treat of diseases of the heart, you will find an affection similar to this. Persons will have violent palpitation, and become pale; and this state is not one indicative of bleeding and purging, which in a complaint like this would make things worse; but very much to my surprise, when I first ventured on practice, I found iron would remedy this morbid condition of the system to some extent. It will not cure organic disease; but when the heart and the body thus becomes almost bloodless, and excessive faintness has been induced by it, so that you have a quick irregular and sharp pulse, the patient will experience the greatest relief from the iron. There is no confusion in all this; for these diseases, although they are not said to be analogous affections, are all of the same family; there is a want of the production of blood. In those cases which occurred in France, we might suppose that some deleterious substance affected the functions of the body. Very often no cause can be discovered for chlorosis in women. In disease of the heart, persons will constantly fall into a condition of the system similar to that observed in chlorotic women; but with palpitation much greater than ever occurs in chlorosis. In various visceral diseases, such as diseases in the spleen and stomach, anæmia occurs. Iron is the best remedy for anæmia from *loss* of blood, as well as from *deficient formation* of the vital fluid.

LECTURE XX.

SCURVY.—ETYMOLOGY.—SYMPTOMS.—CAUSES.—TREATMENT.

SOME assert that the word *scurvy* is derived from the German words “scharf-pocke;” which means sharp or violent pock, and has been corrupted to “scharbock;” or from “sharf-poke,”—meaning scab or scurf-pock. However this may be, it is from the latter word scharbock, Latinized and corrupted, that *scorbutus* is derived; and from this we are said to have our English word “scurvy;” but I should rather think it came directly from the Danish word “scurv.” The word “scurvy” is used by some in a very indefinite sense;—being applied to any ill-looking, chronic cutaneous disease; but in our profession it is restricted to a particular affection. This disease is characterized by a bloated surface, and by petechiæ, vibices, and ecchymoses. By *petechiæ* are meant minute dark red or livid points; a little larger than the point of a pin. Spots still larger than these are termed *vibices*; and when instead of spots we have patches, the word *ecchymoses* is employed. They all relate to the same appearance; but denote a difference in extent. These points, specks, or patches, are of a dark red or purple hue; but they may contain all the shades which we perceive in common bruises. This disease is attended by hardness of parts, and especially of the thighs. You will find this to be the case more particularly under the ham; and in severe cases, the hardness is like that of a board.

The gums are particularly affected,—being spongy, and inclined to bleed; and either they, or the breath, or both, send for a very offensive smell. Such is the disease of the gums, that very often the teeth drop out; and in addition to their being spongy and bleeding, they become large and livid. This disease is characterized by great debility; and the spirits are much depressed. Persons very frequently faint, from time to time; and the pulse is found weak, and the surface of the body cold. Ulcers frequently form on the surface, discharging a thin and foetid bloody fluid; and at last a coagulum of blood is formed. The gums are precisely in the same state. The blood which is discharged, and coagulates upon the ulcer, is with great difficulty separated from it. It adheres to the ulcer, and to the flesh beneath it; and if you remove it, the flesh is seen like the gums,—soft and spongy; and the coagulum is instantly renewed. A fresh oozing of blood occurs; a second coagulum supplies the place of the first; and at length a fungus will sprout forth, soft and flaccid and dark looking, which grows as fast as you remove it. This is termed by sailors “bullock’s liver.” It may attain an enormous size; and should it be repressed, a gangrenous tendency is frequently seen. The leg will swell, and become more spotted and painful. When a fungus sprouts forth from the dura mater, after a fracture of the skull, it is very hazardous (as you are aware) to repress it; for if the part be compressed, very often dangerous symptoms will arise. The slightest bruise inflicted on a patient who has scurvy to any

serious degree, will generally produce an ulcer. Old wounds and even fractures, have a tendency to recur under this disease. For example, wherever an ulcer has existed,—wherever a solution of continuity in soft parts has occurred previously, although the parts have been well cicatrized, yet in persons labouring under this disease, the wound frequently opens again. This is not confined to soft parts; but bones which were formerly fractured and repaired, become again disunited; proving that the callus of bones is not so strong as the original parts of the body; and that it suffers when the rest of the bones are not affected. The occurrence of nyctalopi, or night-blindness, in this disease, is very singular. Persons labouring under scurvy, often become blind in part or altogether, when night comes on.

Want of fresh animal and vegetable food is the great cause of scurvy. Formerly the disease was very prevalent at sea; because sailors were provided with nothing but salt provisions. In 1726 Admiral HOSIER sailed to the West Indies; and so bad was the general management, that he buried his ship's crew twice, and then he died of a broken heart. Deaths to the amount of eight or ten have occurred in a moderate ship's company; and the bodies were sown up in a hammock, and washed about the deck for want of sufficient strength in the crew to throw them overboard. Lord ANSON, in 1741, lost half his crew in six months by scurvy. Out of nine hundred and sixty-one men, he had left at the end of the year three hundred and thirty-five; and only seventy-one were fit for duty at the end of the second year. Sir Gilbert Blane states that the disease occurs in about six or seven weeks after sea virtualing.

The celebrated SMOLLETT, in his HISTORY OF ENGLAND, and also in RODERICK RANDOM, gives an account of an armament that sailed about the time of Lord Anson; in which he states the provision consisted of putrid salt beef, which the sailors called Irish Horse; salt pork; and musty bread. The salt pork came from New England, and was neither fish nor flesh, but savoured of both. The bread came from the same country; and the biscuit, like a piece of clock-work, moved by its own internal impulse, occasioned by myriads of insects that dwelt within it. The butter was served out by the gill; and was exactly like train oil thickened with salt; and though there was water enough to allow each nearly half a gallon daily, for six months, yet each had only a purser's quart a day in the torrid zone, where a gallon would have been hardly enough to repair the waste of perspiration. Who then can be surprised that scurvy prevailed to such a fearful amount. The disease also prevailed, and was a fatal disease, in London. In the seventeenth century, there were from fifty to ninety deaths from it annually; and in the year in which the plague occurred, there were one hundred and five deaths. These took place regularly, and not during a particular year. There was the same cause for the disease in London, as produced it at sea; for the food of the inhabitants was salt beef and pork, with a little real. The working people had very little else in the reign of Henry VIII.; for our pasture-land was then only common, and very little was cul-

tivated. Animals could only feed during summer and autumn, hay being a later improvement. It was impossible to feed them longer than that period; and they were therefore killed, as the winter came on, and salted for provision for the ensuing spring. Garden-stuff was extremely scarce in those days; for cabbage and other vegetables were not cultivated before the reign of Henry VIII. The government of the time seemed to give encouragement to the consumption of meat; but vegetable food was comparatively neglected.

The eating of salt putrid meat appeared to be the cause of scurvy; but it was not the salt; for if it be taken in the greatest excess, it will not produce scurvy; and scurvy will occur where there is no salt used; and persons will have scurvy who eat no meat; consequently it is not this, but the want of other fresh animal and vegetable food that induces the disease. I have seen several cases of scurvy in persons who had eaten no meat; and it arose in them from the want of food. Sir FRANCIS MILMAN mentions, in the Transactions of the College of Physicians, that some women in the country had the scurvy, though they had eaten no meat, but subsisted on tea and bread, after having been used to better food. *Sea scurvy* and *land scurvy* are exactly the same disease. Dr. MUSGRAVE states, in a work published in 1703, that scurvy was common in Somersetshire; so, you observe, it prevailed at sea, in large towns, and also in the country. Cold and want of exercise unquestionably encouraged it; for sailors are seen to suffer in cold latitudes, when they are placed under precisely the same circumstances, with the exception of latitude, in which they *escape* in warm climates. This fact illustrates the effect of cold. Captain COOK states, that the people of Kamshatska, who are habituated to hard labour, never have the scurvy; while the Russians and Cossacks, who live in garrison in the greatest indolence, are subject to it. Sir GILBERT BLANE states, that only the prime seamen, who were exempted from pumping, were attacked; while those who were obliged to work at the pump from time to time (the ship having proved leaky) escaped. It is said that moisture has some considerable effect; I presume when united with cold. LA PEROUSE considers that the crew of his ship was prevented from having the scurvy in consequence of his vessel being kept dry by fumigation, and braziers of hot coals. Captain PARRY ascribes the first case of scurvy, in one of his expeditions, to moisture. Some years since, when scurvy prevailed at the Milbank Penitentiary, it was observed that those persons employed in the kitchen always escaped. Probably they obtained better food than the rest, or more of it; but at any rate they had a warmer place. Captain KING informed Dr. MACMICHAEL (as he stated before the College of Physicians) that in a voyage round the south coast of America, no cause of scurvy was apparent (the crew having had plenty of lemon-juice), except that there was a remarkably cold and moist state of the atmosphere. I believe that moisture alone will occasion it; but moisture certainly aggravates the effects of cold in this disease, as it does in all others. It is a fact, that while the ship's company of Lord ANSON suffered so greatly, in a voyage to discover new regions, the crew of

Captain COOK, in their voyage subsequently performed, suffered but very little or nothing; and why? Because Captain Cook possessed a good supply of soup, sour crout, and fresh meat; and compelled his crew to regular exercise. He was also exceedingly particular with respect to extreme cleanliness, and good ventilation. And the company were only absent from land about three weeks at the longest time, although they were absent from home so great a length of time. These precautions will generally prevent scurvy. Should there be no fresh provisions, if there be a good supply of lemon-juice on board it will be an excellent substitute; and occasionally, if all the other particulars are neglected, lemon-juice proves a preventive of the disease.

Fresh provisions, animal and vegetable, are the great remedy; farinaceous vegetable substances alone are insufficient; and when fresh food cannot be obtained, then lemon-juice will be found to be the best remedy. The effects of this medicine are extraordinary. The compiler of Lord ANSON'S Voyages states (after having described the disease, and the consternation it caused by its destroying power), that the cure seemed impossible by any remedy or any management. Scurvy was formerly believed to be incurable; that it was so formidable, that it could never be cured. These opinions were at one time entertained; but experience has taught us to cure it with facility. We can not only cure it by lemon-juice, but all the hesperidæi—the lime, Seville and unripe China oranges, malt and sour crout, are said to have a similar power. The usual plan consists in giving three table spoonfuls every morning to each patient; for the purpose of preventing the disease. Lemon-juice is preserved by mixing one-tenth part of spirit with it. The present navy allowance is one ounce of lemon-juice with one ounce and a-half of sugar; and it is stated that scurvy rarely occurs in the longest voyages. Citric acid is supposed to be inferior to lemon-juice. During the nine years previous to the present navy supply, the average number of sick sent to the hospital was about one in four of the whole navy; and in the succeeding nine years it was only one in eight and a-half. It is supposed also that lemon-juice improves the health. As an illustration of the efficiency of this remedy, we may mention that the Suffolk departed from England in April, 1794, and did not communicate with the land for twenty weeks and one day; and yet she had only fifteen sick during the voyage, up to that time; and those fifteen were but slightly affected, and were speedily cured by an augmentation of the first allowance of two-thirds of an ounce of this juice; and on her arrival not a man had the scurvy. In the year 1800 the Channel fleet comprised twenty-four ships of the line, besides smaller vessels; and these vessels had no fresh provisions for sixteen weeks; but the men had plenty of lemon-juice; and not a single case of scurvy occurred.

But the channel-fleet in 1780, could not keep at sea beyond ten weeks; for the crew were worn out with scurvy; and 2,500 of the men were sent into port with this disease. It is stated in PURCHAS'S PILGRIM, that Commodore LANCASHIRE sailed from England, with three other ships, for the Cape of Good Hope, on the 2d of April;

and arrived in Saldanha Bay, on the 1st of August. The crew in the ship in which the Commodore sailed were in perfect health, because he caused three table spoonfuls of lemon-juice to be given to each of the company. But the other ship's company were so sickly, as to be unable to perform duty; and the Commodore was compelled to send a supply of men to take in the sails, and to hoist out their boats. This disease was known in ancient times. It was known in the Roman army in Germany; also in what has been termed the "Holy Wars." But it was first particularly noticed in the company of the VASCO DI GAMA in 1794. This disease is mentioned by PLINY as occurring in the Roman army under GERMANICUS. The remedy was left for modern times; but it is not so very recent either; for you find it mentioned as far back as 200 years ago. I may mention a curious fact, with respect to this remedy. It is said the London College of Physicians was applied to by government, for a cure for scurvy. They advised the administration of vinegar, which has very little power over the disease; and a Fellow of the College, who wrote on the affection in 1753, never mentions lemon-juice; although it was mentioned by WOODALL, in his "Surgeon's Mate, or Military and Domestic Medicine," in 1636. The latter stated that he dared not write how good a sauce it was with meat, lest the chief in the cabin should waste it to save vinegar. It is said to have been mentioned in PURCHAS's PILGRIM, published in 1600. Dr. LIND revived the knowledge of this remedy, in his work on the Diseases of Seamen, published in 1772; but even then it was not brought into use generally; and the navy actually suffered most frightfully from this disease, until 1795; in which year a good supply of lemon-juice was ordered by Government (the late EARL SPENCER being at the head of the Admiralty) on the representation of Dr. BLAIR and Sir GILBERT BLANE, who were then Commissioners of the Board of Sick and Wounded Seamen; and in less than eighteen months, there was not a case of scurvy in Haslar Hospital. In 1780 there were not less than 1457;—in 1806 and in 1807, there was only one affected.

SIR W. HERSCHELL, in a work published in DR. LARDNER's "Cyclopædia," observes, "at present the scurvy is almost completely eradicated. In the navy, partly no doubt from an increased and increasing attention to general diet, but mainly from the constant use of a simple and palatable beverage,—the acid of lemon, served out in daily rations. If the gratitude of mankind be allowed on all hands to be the just meed of the philosophical physician, to whose discernment in seizing, and perseverance in forcing it on public notice, we owe the great safeguard of infantile life; it ought not to be denied to those whose skill and discrimination have thus strengthened the sinews of our most powerful arm, and obliterated one of the darkest features in one of the most glorious of all professions."

In spite of the simple treatment of Scurvy, which consists in cleanliness, wholesome food, exercise, and cheerfulness, and in a regular supply of lemon-juice, sporadic cases still occur: but generally this is all. I have seen many cases of this disease in London; and some

of them were in persons who had never been to sea,—who had eaten no salt meat ; but had been deprived of food altogether. Others were sailors, who came on shore labouring under this disease ; for in merchantmen there is much neglect. One patient had been sixteen weeks at sea ; and there was no medical gentleman on board. He had nothing but the hardest salt meat, without anything but biscuit, during the whole voyage. As might have been suspected, he laboured under scurvy to a great extent ; and he stated that several of the crew had died. I gave these patients lemon-juice ; but I cannot say whether it effected any good ; because they were allowed fresh meat and greens, with porter, and every article of good diet, every day ; and this was sufficient to cure them. Some persons now state, that lemon-juice does not do good ; and that the benefit arises from other means ; and that neutral salts, particularly nitre, are more efficacious. I dare not assert, however, that the authority which is derived from the accumulated facts relative to the use of lemon-juice, is at all to be disputed ; and until we have further evidence, it is our bounden duty to administer lemon-juice, or things similar to that remedy, if the latter cannot be obtained ; with the aim of doing away with the ill effects, which a want of fresh provision causes. With regard to local applications, it is observed that lemon-juice is one of the best, when there is a scorbutic ulcer. A slice of lemon laid on it, is one of the best applications you can employ. This is mentioned by PERE LEBAT, in his “ Voyage to the Antilles.” If any disease be of a chemical disease, I should say that this is one ; for in one sense, the constitution is not at all in fault. All the fluids and all the solids appear to be changed ; and you have only to produce a different chemical state to the body and the disease is cured. You need not exhibit anything which acts by a specific operation ; that is, no drug which acts as a medicine ; but you should employ fresh articles of diet, and you will thus remedy the depraved constitution of the whole mass of the solids and fluids. I am not conscious that this disease attacks any one particular part. It appears to be a cachectic state of the whole body ; and if there be such a thing as a “ universal disease,” scurvy I should say is one. *Pupura* is very similar to this disease in some respects ; and has been described and arranged among diseases of the skin, by DR. WILLAN. Some are of opinion that pupura is the same as scurvy ; but I cannot think so.

LECTURE XXI.

FEVER.

GENERALLY fevers are divided into three kinds ;—intermittent, remittent, and continued ; but some divide them into intermittent and continued only ; and subdivide continued into those which continue unremittingly, and which they term “ continent ;” and those which have remissions, and are called “ remittent.” Fevers, whether intermittent or continued, are all marked by those symptoms which are

termed *pyrexia*. When speaking of inflammation, I said that there was only two stages well marked in the pyrexia of that disease,—cold and heat; but in real fever there are frequently three;—a cold, a hot, and a sweating stage. In intermittent fever these are very distinct. In continued fever, you may have a shivering at the commencement; but it will terminate in the course of the complaint, and you will have long-continued heat to deal with. It is only towards the last, that there are any sweats, and often there are none of a remarkable character. Frequently there is mere moisture of the skin as the disease declines. In intermittent fever, there are usually a cold, a hot, and a sweating stage. When the cold stage is about to commence, the person feels very weak and listless; he yawns and gapes, and stretches himself; his mind is less active; and his external senses are more or less dull and impaired. He is unfitted for his avocations; and he labours under great depression of spirits. There is soon a sensation of coldness felt in the back; and he complains of chilliness. When the cold has commenced, the surface becomes pale and dry;—the mouth and fauces also are dry. The patient then begins to tremble; and he becomes in reality very cold,—the temperature falling perceptibly to others; and he becomes colder, until at length he is in a state of great shivering; and his jaws chatter. The skin is at this time so exceedingly constricted, that it becomes roughened; and that state is termed *horripilatio*,—in which the hairs stand on end. It is vulgarly called “goose’s-skin;” but in Latin,—“*cutis anserina*.” So great is the shrinking, that rings will drop off that fitted before. The urine in this stage is pale and scanty;—perhaps the same constriction of the secreting vessels of the kidney occurs, which occasions the dryness of the surface of the body. It is also probably the same constriction of the secreting vessels, which gives rise to the dryness of the mouth and fauces, and likewise to the thirst. This is a condition of great debility; and the pulse is weak and sometimes slow, owing, I think, to the accumulation of blood in the internal parts, the breath is generally short. The stomach is sometimes affected with vomiting. Should this stage become very intense, you will have the face, hands and feet, blue, the fingers shrivelled, and the eyes sunk. In this stage, you perceive that the blood has receded from the surface, and perhaps from all the small vessels; so that it has accumulated, in great quantity, in the larger vessels of the interior. When it has lasted some time, the skin relaxes; it regains its warmth, colour and sensibility; and the pulse becomes quicker and fuller. The heat, the colour, and the sensibility, go on increasing; until at length they exceed their natural standard; and the pulse grows full and very rapid. This is termed the *hot stage*.

The patient complains of head-ache; and even delirium may occur. The thirst, the dryness of the skin, and the deficiency of the urine, continue; perhaps from the constriction of the extremities of the secreting vessels, though the small vessels become filled with blood. The urine is now high coloured, but clear; the breath is freer,—perhaps from the blood getting into the small vessels;—the person

can now take a deep inspiration;—there is not that slow breathing, as at first; but yet there is more or less oppression; for the heart is in violent action, and when that is the case, there is always more or less dyspnoea. If the disease intermit altogether, it is termed “ague,”—from the French word “aigue,” *sharp, acute*; but the working people limit the word *fever* to the hot, or the hot and sweating stages; and they call the cold stage only *ague*. Ague, however, includes the whole three stages. Both the terms, “pyrexia” and “fever,” though made by authors to include the whole stages, imply the hot only; as the former is derived from *πῦρ*,—*fire*; and the term “fever,” from “*ferveo*,” *to be hot*.

(The editor of these lectures has derived from *personal* experience an intimate knowledge of the stages of this kind of fever, from the circumstance of his having first drawn breath on the borders of an extensive marsh, and also from his having been attacked by this disease, and he is enabled to state that the learned professor is extremely accurate in his description of the cold and hot stages, excepting where he attributes to the “common people” an ignorance which their fatal experience contradicts. When a person, living in marshy districts, is attacked with this kind of fever, the working, as well as the middling, aye, and even the rich classes, denominate the disease “ague,” but they do not apply the term merely to the *cold stage* alone, but to all the *three stages* of the disease. The editor is, of course, speaking of people who live on or near extensive marshes, where intermittent fever is unfortunately very prevalent.)

When the hot stage has terminated, the skin at length becomes softer; it becomes also moist,—the moisture augmenting, until at length the patient is in a profuse perspiration. This is termed the *sweating stage*. In it the same relaxation of the internal secreting vessels takes place as of those of the skin. The thirst declines; the urine becomes copious; and the vessels let out so much substance, that the urine contains matters which form a lateritious sediment. After this stage has continued some time, the pulse gradually becomes slower; the sweating and every other symptom diminish; the appetite, which is generally absent in all three stages, returns; and the patient is as well as though nothing had happened. Should the disease continue for any length of time, the individual becomes debilitated by it; but if the disease is not very severe, and there is no local complaint, when the paroxysm is over, he is as well as previous to the attack. There is of course, a great *variety* in the intensity of the different stages;—also, a great variety as to the intensity of the disease altogether. There are also incidental symptoms; such as tetanus, convulsions, fainting, violent delirium, and the appearance of petechiæ on the skin. Some individuals have been known to have their muscles rigid,—absolutely in a tetanic condition. SIR JOHN PRINGLE states violent delirium, as the character of an epidemic which he saw. He also states that in Copenhagen, in 1652, petechiæ appeared in the hot stage of an intermittent fever, which prevailed there. BARTHOLINI gives the same account. In two cases I saw, in the cold stage, violent clenching of the hand; so that the

fingers and thumbs were drawn together in a violent manner, and so continued until the stage terminated. But I have not witnessed the whole of the extraordinary symptoms on record. These stages may take place in a day, and never return. This has been termed "ephemera;" but for the most part, these stages return periodically, so that you do not have ephemeral ague, but intermittent fever. Should the intermission between the paroxysms be only part of a day (by which we mean twenty-four hours), the fever is denominated "quotidian;" that is, if the fever returns every day,—there being an intermission of only part of a day. Should there be an intermission of a whole day, so that the person is attacked every other day, it is termed "tertian;" because the first day is counted as well as the third. The day on which an individual is attacked, is the first day; the day of intermission, the second; and the day of the second attack, the third. Should the person have an intermission of two days, that is, having one fit on a Monday, and the next on Thursday, it is termed "quartan." These are the types of intermittent fever. The quotidian and tertian are more frequently seen in London, than the quartan. The intermissions may be still longer;—you may have a quintan, a sextan, a septiman, or even a deciman; so that there is an interval of nine days, and the first being counted, makes up the ten. A gentleman informed me he saw a septiman take place for three weeks; that is, the person had a paroxysm after the lapse of six days, occurring on the seventh, for three weeks. In 1827, I had a patient with a septiman. In the same year, I had another who had an interval of four days; so that his disease was a quintan. I once treated a double octavan. A man had a paroxysm every Sunday and Thursday;—a paroxysm occurring at one hour on the Thursday, and at another on the Sunday. When they extend to these periods, the disease is termed "erratica." It wanders out of the usual regular course. This term is also given to an ague that observes no regular period;—which at one attack may be quartan, and at the next quintan. Sometimes you have more than one paroxysm in a day,—more than a quotidian. I have heard of four paroxysms in a day. It is common to see a double tertian, where you have a paroxysm every day, but you see paroxysms two days in succession, which do not belong to each other. (The learned professor then gave several examples of curious deviations in the course of this disease; and then stated that they were too minute for the lecture room.)

A paroxysm of intermittent fever, including the three stages, is generally terminated in eighteen hours; and it rarely lasts longer. Dr. Good quotes a writer, who states, that he saw a paroxysm which lasted exactly one minute. How the stages were divided I do not know. The paroxysm of ague, like almost all other fevers, is said to occur more frequently in the day than night. But as a general rule it may be stated, that the paroxysms begin between eight o'clock in the morning, and eight o'clock in the evening. There are of course many exceptions. Some authors assert that a quotidian usually has its paroxysms in the morning, a tertian at noon, and a quartan in the afternoon; but you will continually see tertians come

on in the afternoon, quartans at noon, and quotidians in the evening. Some say that a quotidian has the shortest cold stage, but altogether the longest paroxysm;—that a tertian has a longer cold stage, but altogether the shortest paroxysm; whereas a quartan has a still longer cold stage, but nevertheless a shorter paroxysm than either of the others. Some writers relate some singular cases of paroxysms affecting only a part of the body. There is one case in which a vertical half of the body suffered an attack of ague; and the other half became convulsed in the cold fit. But what is more curious is, that the same half was not always similarly affected; but the symptoms changed sides. I have read of one case where the paroxysms of ague affected one half of the body horizontally; and in other cases it has only affected half the head. Dr. MACCULLOCH states that a paroxysm may affect one limb. These facts are not insulated; they are perfectly analogous to many others, which are at times observed in the body. Epilepsy will sometimes affect only one half of the body;—occasionally it will affect only a limb. Catalepsy will do the same; and paralysis so constantly does it, that one of the established forms of palsy is hemiplegia. Another is paraplegia. Dr. ABERCROMBIE states that a friend of his, when in exercise, sweats only in the vertical half of the body;—that there is a line on the forehead, perfectly distinguishing the sweating from the dry side. If the gentleman takes very violent exercise, then the dry side is forced to sweat likewise. Dr. FALCONER states a case, in which a child became pale and emaciated in one half of the body only. ANDREAL relates cases, in which sweating occurred only in one half of the body;—in some of the cases it was horizontal, and in some vertical. Intermittent fevers will change their type in their progress;—from tertian they will become quotidian, from quotidian they will become tertian; from either tertian or quotidian they will become quartan, and from quartan they will become either of the others. They will not only change their type once, but more than once; and sometimes they will continue changing, so that they observe no rule at all; and then they are denominated erratic. There is another variety, including those which will not change their types at all. They will remain quotidian, tertian, or quartan; but they will change the hour of attack. Instead of commencing at the same hour, they will begin later and later; or the converse. Sometimes they will be very irregular at first; and then at last they will grow regular. At other times they will grow milder only. You will understand that it is a general rule, that the paroxysm grows later and later, as they grow milder; but as the paroxysms become more severe,—more intense, and the disease grows worse, they generally come on earlier and earlier; but when the paroxysm grows later and later, and at the same time milder and milder, it at last degenerates into nothing more than a little chilliness, a little heat, a little sweating, or a little of all there. Sometimes the paroxysm shews itself only a little at a certain time of the day; or there is only a little chilliness, followed by a little sweating. These intermittent fevers take place generally in spring and autumn; but the quartans usually occur in autumn;—

that is, there are more quartans among autumnal, than among vernal agues. You will sometimes see the paroxysms imperfect, even before the disease has much declined. I have frequently seen and cured agues in which the cold stage occurred, but was never succeeded either by the hot or the sweating stage. So sometimes the hot stage will come on alone, without being preceded by the cold stage. Generally the paroxysm will be terminated by the sweating stage; but occasionally there will be no sweating stage at all; and you may have the three stages alone. CULLEN states that the cold stage is necessary to the others;—that the cold stage excites the *vis medicatrix naturæ*;—that to be rid of the cold stage, nature exerts herself, and brings on the hot, and then the sweating stage. But this is mere assertion; for you may have the hot stage without the cold stage, or the latter without the former. Occasionally there is no regular paroxysm at all; but persons will have frequent and general chilliness, at various periods, with great depression of spirits; which feelings cause them to cry, yawn, and stretch; and sometimes to be a little silly, and to have a number of odd sensations. These phenomena characterize what is denominated by the working people, the *dumb* or *dead* ague. This form of the affection is however to be treated as the other forms of the disease. There is one writer who informs us, that he has seen all the forms of ague reversed;—that the complaint commenced with the sweating stage, then the hot stage commenced; and the paroxysm was terminated by the cold stage. This disease, before it is fully formed, is occasionally preceded by head ache, pain in the nerves, (neuralgia), vomiting, and general indisposition. All these symptoms may last for a longer or a shorter time; and may either cease on the appearance of the disease, or may continue more or less, when the affection is established. Even continued fever has preceded ague. This disease may last from one paroxysm to many;—from being ephemeral, to many years. It certainly used to do so, before we could cure it as we can now. There is one case on record, which lasted for forty years. LOMMIUS mentions a case which lasted twenty years. VALESCUS, of Tarenta, is said to have had it during the whole period of his life. Dr. GREGORY saw a case which had lasted four years. On the other hand, Dr. GOOD quotes SENAC for a case, in which the disease destroyed life, the moment it began. SYDENHAM says that when it proves fatal, it is in the cold stage; because when the hot state commences, nature is getting better of the disease; and that a person cannot die from it, if nature be recovering herself, as is the case in the hot stage. But the fact is, it will destroy life in the hot stage. In warmer climates than England, there is a great congestion of the internal parts of the head; and individuals will fall into a state of coma, as they do in the cold stage. I have known some persons have this disease every spring, for many years; and although we have never seen people have it regularly all the year round, yet many of us have seen persons who had the disease once a year. As regards duration, quartans are said to last the longest. Tertians and quotidians are more like an acute disease;

but the quartans coming on after an intermission of two days, partake more of the nature of a chronic affection. The disease being chronic in its character, is consequently chronic in its duration. Thus a quartan lasts longest, and is usually the most difficult to cure; and on the same principle it is said that a tertian, left to itself, continues longer than a quotidian. Ague affects persons of all ages. It is seen in young children at the breast; and I have known an old man of eighty years of age affected with it. It is asserted that it will even affect children before they are born. You will find it stated, that children have had paroxysms of ague, the moment they came into the world; just as it is asserted that some children have had whooping-cough; so that the first thing they did, instead of crying, was to hoop. Dr. RUSSELL, in his History of Aleppo, states that a pregnant woman who had a tertian ague, shook every other day; and she felt the child within her shake regularly on the day when she was disposed to be quiet. That is to say, the mother shook on the Monday and Wednesday, and the child on the Thursday; so that she had *one* tertian, and the child the *other*. But what proves that the child had a different ague from the mother, is that Peruvian bark was given. It cured both mother and child; but as the child was (of course) younger than its mother, I presume the bark had more effect upon it; for it was cured one paroxysm before the parent. I have been informed that a similar case occurred at a dispensary in London. The woman came shaking with ague; and the child within her shook like herself, but at a different time. I have no doubt about children having small-pox in the womb. Mr. ABERNETHY has mentioned a case of a child that had the disease, though not the *symptoms* of whooping-cough, before birth. Of course it was affected by the contagion; but for want of breath it could not hoop. If ague has once taken place, it is very liable to return from common causes; such as cold, wet, and easterly winds,—particularly in this country. I do not know whether it will recur spontaneously;—whether without cold and moisture, and without an east wind, or some wind charged with malaria; but certainly the least cause will sometimes bring it back, if a person has once been affected by it. Dr. GREGORY used to state, that he has known two cases of ague to return, from some common cause, after having been absent forty years; and he also states, that he has known it to recur after a lapse of years, at the day and hour on which it began. When a person is affected with this disease, it gives an intermittent or remittent tendency to many other complaints that may be present; for should he be attacked by ague, the first disease will have a tendency to blend itself with the ague; so that it will have remissions, if not *intermissions* of it. If ague prevails epidemically, individuals who are not affected, still exhibit a tendency to an intermittent or remittent character in any other disease which they may have at that period. This is chiefly seen in fever. Should ague prevail, or individuals be exposed to the *cause* of that affection, continued fever will manifest a tendency to put on the remittent form, and this remittent form appears to be a combination of continued and intermittent fever.

Ague is very often followed by severe rheumatic pains in the extremities, or in the head; sometimes it will alternate with rheumatism; so that rheumatism shall cease, and the ague return; and the contrary.

Dr. GREGORY saw ague alternate with epistaxis; and in another instance he saw it alternate with hæmaturia,—bleeding from the urinary passages; which ceased at last, and then the ague returned, and was followed by paralysis. He also saw two cases of ague, which lasted for two years; and at the end of that time, was cured by bark; but periodical delirium came on in its place. Sometimes ague is attended by local inflammation; and occasionally by inflammatory pains of the head, the chest, or the abdomen; particularly gastritis and hepatitis. The abdominal viscera suffer very much in autumn, and in hot climates; and ague is often attended, when not by inflammation of these parts, by bilious vomiting and purging, or even by jaundice and dysentery. Sir JOHN PRINGLE says that, in New Zealand, ague is termed “gall-fever;” because it is attended by great irritation of the liver; and on account of the abundant secretion of bile. If you examine a person who has died of intermittent fever, you will discover congestion and effusion in the head, chest, and abdomen. The mucous surface of the alimentary canal is also in a state of congestion; and the liver contains a quantity of bile. If ague proves fatal, you frequently find great internal congestion;—fulness of all the blood-vessels of the head, chest, stomach and intestines. Should the disease have lasted for any time, you then perceive various organic affections; such as dropsies and other complaints.

LECTURE XXII.

FEVER.

It is not uncommon, in ague, to see the abdominal organs affected; so that individuals have vomiting or diarrhœa, or even cholera. It is very common, when ague has continued some time, for the spleen to become enlarged. Indeed so frequent an occurrence is this, that in some countries the tumor is called “ague cake.” The tumor formed by the spleen, occupies the left hypochondrium, or probably the whole left half of the abdomen. Dr. CLEGHORN mentions having seen a spleen which weighed *eighty* ounces. Dr. GREGORY has mentioned one that weighed *twelve* pounds. You will often see this in the case of infants. I have seen this in many infants who have been subjects of ague. If this disease has continued for some time, it is common also to see ascites, as well as enlarged spleen. You will often see enlargement of the liver and jaundice. This is very common, but particularly the former. When the spleen is enlarged the person is for the most part pale; he falls into a state of *anæmia*, and in the case of enlarged liver he becomes more or less the subject of jaundice. You will also very often have anasarca, as well as

ascites ; and sometimes without any ascites, you will have anasarca ; and these complaints will generally remain for a longer or shorter period after the ague has terminated. Sometimes they will come on while the ague exists ; and in this case they are the more aggravated in consequence of the continuance of the ague. In former times it was supposed that these affections arose from the ague being stopped ; but this I am certain is erroneous ; patients will bear these diseases much better if you cure the ague ; for ague shatters the constitution, and renders it more easily a prey to any visceral disease that may exist. I do not believe that these diseases are the effect of ague ; but I am convinced that they are the result of the same cause which produces ague ; and why ? Because I have seen individuals labouring under enlargement of the liver and spleen, and under dropsy of much intensity, who have had but one fit of ague ; and that fit has borne no proportion to the severity of these other complaints. The same cause, then, that produces the ague, namely, poisonous exhalation, produces also these various effects ; and they render the ague more obstinate. And though it is almost impossible to cure an ague, while these complaints continue, yet you may remedy them in the best way you can by mercury, bleeding, purging, and the usual remedies of chronic inflammation ; and you will then often cure the ague. Now if these diseases arose from the suppression of the ague, you (of course) would not have them while the ague continued ; and if they depended on the ague, and not on the *cause* of ague, they ought to bear some proportion to its degree and continuance ; but they appear to bear a proportion in some measure to the continuance and intensity of the *cause* of ague. Still the continuance of ague renders them worse by debilitating the constitution. The faculties of the mind often become impaired by a continued exposure to the cause of ague. SYDENHAM mentions a degree of idiotcy or impaired mental faculty, which he denominates “*amentia quartana*,”—quartan fatuity. I think that ague increases these affections by debilitating the system ; but I do not believe that ague gives rise to them, but that they proceed from the cause which produces ague. Those intermittents which attack persons between the winter and summer solstice, are mostly attended by complaints of the chest ; because that is the period at which such affections are most prevalent.

The autumnal intermittents, which occur between summer and winter, are chiefly attended by abdominal symptoms, by inflammation, and occasionally by intense bilious vomiting, purging and jaundice ; and at this time of the year, ague has a very great tendency to become continued fever ; for the excitement is disposed not to cease, but only to remit. Should autumnal intermittents prevail, you have as many remittent fevers as agues, and some of these become continual ; a conjunction, in all probability, that arises from the causes of these various local excitements, and also of continued fever, co-existing with the cause of ague. In the hot seasons of the year, all persons are disposed to affections of the bowels, of the stomach, and of the liver, without having ague at all ; and if therefore the causes

of ague are joined with the causes of these common affections, you will of course have ague accompanied by these other complaints. Yet it is probable that the cause of ague may be modified, so as to produce peculiar effects at this season of the year. Ague will sometimes stop other diseases, which may have previously existed. Dr. GREGORY mentioned that he saw palpitation cured by ague; and that the patient lived many years afterwards, and died without the original affection, which he had laboured under until the ague attacked him. Dr. FORDYCE states, that he has seen ague cure many diseases. BOERHAAVE, in his "Aphorisms," says ague disposes a person to longevity, and clears the body from inveterate diseases. But there is no doubt that agues tend to destroy the constitution. They will shorten life, and they may be speedily fatal; and should any other affection exist at the time, they for the most part aggravate it. Dr. MACCULLOCH believes that, when they appear beneficial, it is not generally by curing other diseases, but by their assuming a regular type. He also states, that when benefit appears to arise from ague, it is from the disease having existed previously, but in so strange a manner as to produce all sorts of symptoms; and then all at once becoming regular. It cannot be one thing and another thing at the same time; but when it becomes regular, the individual thinks, for the first time, that he has got an attack of ague; and that some other disease has vanished. Generally the continuance of ague induces emaciation of the body, unless it produce hepatic or splenic disease, and dropsy; and then the appearance of the patient is bloated; but still the individual is pale, and evidently much diseased.

In some parts of Flanders, it is said that ague has a tendency to produce obesity; and sometimes very rapidly; but I think this is not what is termed good fat; but a sort of blubbery fatness. In Flanders, it is stated, that this obesity will occur, whether the disease has been acute or chronic; and when there is no suspicion that organic disease exists. If the disease returns there, or if the seasons be very unhealthy, and a patient become emaciated, the obesity returns when this is over. Some fat people reside in places where malaria prevails; but still they do not appear healthy. It is asserted that OLIVER CROMWELL, and JAMES THE FIRST, died of ague which they caught in London. Dr. CAIUS states, that so fatal was ague in London, in the year 1558, that they could hardly bury the dead. Bishop BURNETT says, that so universal was it in London, and so contagious, that it raged like a plague. SYDENHAM and MORTON state, that ague was a most fatal disease in London, from 1661 to 1665. At Walcheren, during our expedition there, from the last week of September, and during the whole of October, our effective force was reduced by ague, or by remittent fever, to one-third, and ten thousand human beings died of what has been denominated "Walcheren fever," which was no doubt an aguish fever. Should it happen a more inveterate disease than itself is stopped by ague, you may allow the latter to go on; I have, however, never seen such a circumstance; and even if I had, I should feel inclined

to stop the ague gradually, and use at the same time remedies calculated to cure the other affection. Ague is certainly to be preferred to phthisis; and, if an individual were actually in a state of consumption, and the symptoms of this disease ceased on the occurrence of ague, one might feel induced only to mitigate the ague, and not altogether to cure it. Dr. WELLS fancied he had excellent grounds for suspecting that phthisis and ague were opposed to each other; so that where ague prevailed, there was no phthisis; and the converse. It does appear that there is some ground for this;—that ague does diminish the tendency to phthisis; but still the matter is not so important, as Dr. WELLS supposed. Dr. SOUTHEY has collected documents from aguish parts of the several countries where ague prevails; and he proves there is phthisis enough in those parts. I have seen persons die of phthisis, while there has been more or less ague about them. Some persons have adopted the opinions just adverted to, so far, as to send a patient on the point of expiring from phthisis; to stand in a ditch at night, in order to catch an ague. The countenance, in this disease, is frequently very peculiar. It is of a *dirty* straw colour; not *yellow*, nor of the colour of *clean* straw. This has been termed “aguish face.” The mere residence of persons in an aguish district, without the occurrence of the disease, will cause them to appear with the same kind of hue; so that this colour is the effect of the cause of ague.

Should a person be out of health in any respect, he is more liable to be affected by the causes of ague; as is the case with respect to all other diseases. General weakness of the body, independently of the presence of any particular disease, must have the same effect. High health is in general the best preventive of the affection. The father of the late Dr. GREGORY, who wrote two works entitled “A Father’s Legacy to his Daughter,” and “The Duties of a Physician,” used to say, that when he was a student at Leyden, there were twenty-four students who always dined together; and they were very much in each others society. Twenty-three of them regularly drank a bottle of claret every day; but one confined himself to water. The twenty-three escaped, while the poor water-drinker caught an intense ague. This circumstance proves the utility of keeping up the vigour of the body, when individuals reside in unhealthy situations. Depression of spirits will have the same effect as too low living, and any thing which lowers the powers of the system, whether it be over exertion of the body, or of the brain (or *mind*,—whichever you choose to say); or want of good food and clothing; or want of pleasurable excitement of mind;—all these will have the effect of inducing the disease. These effects were plainly perceptible at Walcheren: for on the men arriving there, with the hope of fame, they, for some weeks, continued healthy; but when they saw that the expedition would fail, they became victims of disease. You must remember, however, that latterly they had much greater fatigue to encounter; and the longer they remained at Walcheren, the more they were exposed to the morbid cause of the aguish fever which prevailed. In the marshy parts of France the people cannot resist ague,

unless they drink wine. Sir JOHN PRINGLE says, that wine and full diet are the best safe-guards against it. Dutchmen habituate themselves to take spirits before they go out in the morning; and indeed it is highly necessary,—exposed as they are to the exhalations arising from their putrid ditches.

Infancy and extreme old age are not so liable to this disease, as are those in the middle stage of existence. Women have this disease less frequently than men; but I conceive this arises, not from the female constitution being less liable to it, but from the circumstance of women being more domesticated than men, and being consequently less exposed to its cause. Sir GILBERT BLANE was physician for ten years, to St. Thomas's Hospital; and during that period he had 192 cases of ague, only thirty-three of which were females. During one period of five years, I made an estimate of my cases at the same hospital; and out of 142 cases of ague, I had only twenty-three women affected with the disease. It appears that individuals who have not been exposed to the cause of ague, are more liable to suffer, when they by chance are exposed to the cause; because those who formerly lived exposed to the cause, if exposed at any subsequent period, will continually escape, while the others suffer. It is said that some farmers, in aguish districts, have realised fortunes by marrying a succession of wives from healthy places; for these women, coming fresh upon an aguish district, the malaria has affected them; and a *good kind husband* has been enabled to look out for another and another woman to *love*. Although persons may become habituated to it, yet it more or less injures the constitution; and unless they are well fed, and in good spirits, they seem gradually poisoned by the causes of ague; although these may not have been sufficient to excite ague itself. The true exciting cause of ague, I believe to be an exhalation from decaying vegetable matter;—what is sometimes denominated “phyto-septic, vegeto-putrescent, miasm, marsh-miasmata, malaria.” However marsh miasma is an improper term. It will come from a marsh; but you may have it without the existence of any marsh. Some say that the causes of ague were not known to SYDENHAM, nor to STAHL; and that they were first assigned by an Italian, LANCISI, in 1717. It is also asserted that BOERHAAVE, who wrote in 1747, and BARON VAN SWIETEN, who wrote a few years afterwards, were aware of the cause of ague. Dr. CULLEN satisfied himself that there was but one real cause of ague; and that it was the exhalation I have just now mentioned. The least acquaintance with the classics, will furnish you with lines sufficient to prove that the ancients were aware, that marshy districts were exceedingly unhealthy. The reason for ascribing aguish remittent, or intermittent fevers to these exhalations (or *malaria*, as they are now termed),—to vegetable matter in a state of decay, is that the disease prevails in the vicinity of marshes, and that it declines in proportion as the marshes are drained; and that ague rarely happens in any one who has not been evidently exposed to the exhalations of decomposing vegetable matter. Most persons have heard of ague of the low countries,—of Flanders, and of aguish fevers of the Banks

of the Ganges—of the Fens of Lincolnshire,—the Marshes of Essex; and of Romney Marsh in the lower part of Kent. But this disease is by no means confined to marshes. It springs up around marshes, where persons are exposed to their exhalations; but every spot which contains decaying vegetable matter, may excite the disease. I prefer the term "*malaria*," which is now applied to marsh-miasmata, on this account. Mere moisture will not produce the disease; for there is no ague, however wet the weather may be, till swampy land is approached, or exhalations arise from a swampy part of it. No drenching by rain, will produce ague, unless a person has had the disease, or been exposed to malaria previously; but when a person has once had ague, taking a cold (whether it be from moisture or not) may re-excite it, or may render the system susceptible of the effects of malaria, which it had resisted before. In the thick fogs on the banks of Newfoundland, people never have ague. The waters there come from the Gulf of Mexico, and are called the gulf stream; and are from six to ten degrees higher than the temperature of Newfoundland. In consequence of this, the vapour which passes from the water is immediately condensed; and therefore there is a constant fog; so that the fishermen are employed for six months, in fogs so thick, that they can hardly see from one end of their vessel to the other; and yet they are never known to have ague. There is more rain in the Western than the Eastern parts of England; and yet the people are not proportionably unhealthy. On the contrary, it is on the Eastern side that ague prevails. Minorca has a rocky bottom, and has no marshes; but it is subject to ague, because in different parts of the island there are pools of stagnant water, in which great vegetable decomposition takes place. The soil of the Campagna of Rome, is dry in the most fatal season; but then it is intersected with ditches and drains of water, impregnated with vegetable matter, sufficient to account for the aguish fevers of that beautiful land. Fevers commence in Egypt when the Nile subsides; and the fevers of Bussorah, with the subsidence of the Euphrates. The Arabs, for revenge, once let loose the waters; and thereby produced a disease, which destroyed fourteen thousand human beings. In Artois, in Flanders, the south and west winds come over the swamps; and though the part itself is not swampy, they bring aguish complaints; and as soon as the wind sets in from the sea, and the north, these complaints disappear. In 1528, the French army was reduced from 28,000 to 4000 men, in an attempt on Naples; because they choose an injudicious encampment. It is a curious circumstance that Holland should have given inhabitants to Batavia, which it had rendered more poisonous than its own pestiferous forefather. Decomposition requires a certain degree of moisture; for if you dry any thing, whether it be a vegetable or an animal production, of course you prevent decomposition. A certain degree of moisture is necessary for the production of ague, by the fermentation and putrefaction of vegetable matter, which give rise to the exhalations. Hence, in a moderate swamp, you see why dry weather may arrest the disease, by stopping the

putrefaction ; and you also perceive why, in extremely wet situations there is frequently no ague, because too much fluid also impedes putrefaction ; but this wet, by dry weather, may be reduced to just sufficient swampiness for vegetable decomposition to take place, and malaria to be produced. Dryness will prevent decomposition ; and so will extreme wetness and moisture ; so that some places which were very wet and healthy, have been made unhealthy, by matter being dried just sufficiently for putrefaction to go on ; and other parts which were dry, and which never gave out any exhalations, have been made to do so by a certain degree of moisture falling on them. A certain quantity of rain falling on high ground, will not of course remain there, but will descend ; but still it has moistened the parts alone sufficiently for decomposition to take place ; whereas, when it comes on the low ground, and there collects, it may be so abundant as to dilute all the vegetable matter, and prevent it from putrefying, and thus put a stop to the unhealthiness of the part. In this way an aguish fever has been stopped by inundating a swamp ; and on the other hand, inundation has moistened a dry port, sufficiently for exhalations to take place. If you take the trouble of remembering this, you will be able to explain a number of circumstances, which otherwise would be contradictory. A river breaking loose over a marsh, has sometimes destroyed noxious exhalations ; for where there used to be a marsh, it has produced a kind of lake. A change in the course of a river, may drain a marsh completely ; and in that way it has become healthy ; although it was exceedingly unhealthy previously. The sea has occasionally produced the greatest unhealthiness in a neighbourhood, by making its way over the country, thereby causing a permanent swamp ; and in other cases it has deposited such a body of water, that no exhalations could be given out, although previously they were emitted in great abundance. The Goodwin sands, in the Channel, opposite Deal, is an instance of a cured marsh, though the land is lost. Every river carries down in its course, a quantity of solid materials ; and every river possesses a tendency to fill up its bed ; and it becomes more or less filled with solid matter, which is brought down from the high land ; and a river may be thus completely filled up, so that banks must be raised, or the country would become inundated, and a marsh produced, which would occasion great unhealthiness.

In Switzerland, a track of land became very unhealthy to all around ; and the aguish fevers extended over a great district, as far as Zurich, from the lake of Wallenstadt. The river Linth pours its waters into another river, called the Mag ; and that again into the lake. The Mag became stopped, in consequence of neglect ; and the neighbourhood became one of the most pestiferous districts in Switzerland ; six thousand acres being thus converted into marsh. At last it was remedied by turning the Linth into the lake, and preventing the waters from entering the Mag ; and by widening and deepening the latter. The lake being a deep spot, receives the water from the mountains, and the whole has a free course. How obstinate must have been these people, in living amidst pestilence. Now every

illustration I could adduce,—and I could bring you ten thousand, but they would all come to this,—that a certain degree of moisture is necessary to the disengagement of malaria; and that if you diminish the moisture, you diminish the malaria in one case, and increase it in another; and if you increase the moisture, you may produce either of these effects; and thus it is that circumstances the most opposite, will have the same effect; and circumstances which are exactly the same, will have the most opposite effects, according to situation. There must be a certain degree of temperature, as well as a certain degree of moisture. We can preserve anything from decomposition, by an exceedingly low temperature; and by an exceedingly high temperature, we produce such changes, that it is impossible for decomposition to occur. If meat be spoiling, we have only to cook it, and putrefaction is instantly stopped. It is the same with vegetable matter. A certain degree only of temperature is necessary for putrefaction. If the temperature be increased after having been cold, then you have decomposition, and the disengagement of malaria; so that while the cold weather continues, the people will be comparatively healthy, but when the warm weather arrives, the decomposition is such, that fatal fevers prevail. From this cause, aguish fevers are more severe in hot countries than in England; and more severe in autumn than at any other part of the year. This is one reason; but I will adduce another; and that is, in hot countries, and in hot weather, there is far more vegetable matter to be decomposed; and when we consider that an increase of heat, produces a great increase of decomposition, we also perceive that fever must be ascribed very much to the facility with which decomposition progresses in a warm temperature; but it may be short of that which is sufficient to stop the disengagement of malaria. Consequently if it be very unhealthy, and exceedingly swampy, you will, in cold weather, have aguish disease. The cold is not such as to stop the putrefactive process; but the land is so moist, as to produce a very considerable disengagement. The reason that ague prevails so greatly in spring is, that the soil which was caked, and dried up by the cold of winter, is now moistened; and the temperature of the weather has increased;—the cake has been broken up; therefore you will have exhalations from vegetables;—the vegetable matter which was left on the ground, the preceding autumn, becoming decomposed by the increasing temperature. The fatality of ague in autumn is, because that the summer has produced a fresh stock of vegetable matter; and the matter is in a great measure dying, and lies on the ground to rot; the rain comes on in the hot season, and the heat, the moisture, and the dead vegetable matter, sends forth exhalations, which render fevers far more numerous and severe than in the vernal season. When a quantity of vegetable matter has been lying on the earth, and has become caked, a sudden rain has, occasionally, been attended by the most fatal diseases; for the moistening of the vegetable matter has induced instant putrefaction. The reason why fevers cease when the autumn is ended, is that the greater part of the matter has been decomposed, and the temperature of the atmosphere falls; consequently there is less mat-

ter to putrefy, and less heat to induce putrefaction. Pasture-lands from being continually moist, are very aguish; but if you break them up, they are infinitely more so; because you kill all the vegetable matter in them, and it rushes into putrefaction. It may be that malaria is let loose from the earth, by breaking it up;—at least it is said, that fevers occur in many countries on breaking up the surface of the earth. CASSAN mentions fevers that, like the plague, will occur on land being broken up;—that labourers will occasionally die on the spot, if they remain there all night; but no harm arises if the ground be left undisturbed. M. VOLNEY also mentions this as an invariable observation in America. It is found also (and the fact is precisely similar) that on clearing away woods, the disease prevails. A quantity of vegetable matter necessarily lies on the surface of the earth; which, although kept moist enough for decomposition, is prevented from decaying, in consequence of the inability of the sun to penetrate to it; but on clearing away the wood, the sun is admitted, and the vegetable matter lying on the surface, then falls into rapid decomposition, and the malaria is let loose. It is said that if certain bushes be cut down in a place in Italy, the same effect will occur. The removing of woods has often been injurious in another point of view; for it takes away protection. Some villages have been free from ague while a wood stood between them and a marsh; but on removing the wood, they became immediately unhealthy. Some say that stagnant water alone will cause ague, without any vegetable matter being in it; but you should recollect that such pools will putrify; which they would not do, unless they contained animal or vegetable matter. Water itself, pure oxygen and hydrogen, cannot undergo putrefaction; but *soft* water will putrefy; and this being the case, it must contain dead vegetable matter; and therefore if stagnant water, although nothing can be seen in it, does produce ague, we may explain the occurrence by suposing that it contains vegetable matter. Thames water, if put into casks, however good it may appear, will soon become offensive; and it is said that the decay of the wood of the casks, is quite sufficient to explain this;—the wood being vegetable matter, and being next the water, becomes more or less acted on by the water, and thus undergoes more or less putrefaction, and at length produces malaria. Casks are always charred within; because of their liability to be destroyed; and they are thus enabled to resist putrefaction.

LECTURE XXIII.

INTERMITTENT FEVER.

IN Batavia, the rainy season is comparatively healthy, because the rivers and canals are well supplied with water, and all the marshes are covered; but in the months of July, August, and September, the waters are nearly evaporated, and then fever is much more malignant than at any other period of the year. In some of the West India is-

lands, and particularly in Barbadoes, and on the western coast of Africa, fevers are rare during the long continuance of dry weather; because there is no great quantity of water, and that is evaporated so as to leave the vegetable matter too dry for putrefaction. Fevers are arrested by a long drought, on the western coast of Africa; but in Batavia, they cease during the rainy season. At Charlestown, in South America, (which is a swampy place,) bilious fever prevailed in hot summer weather; but in 1752, there was great heat,—the thermometer standing at 98 in the shade. Vegetation was destroyed; but there was universal health. In summer, fevers frequently prevail in certain parts, in consequence of the rivers diminishing to a great extent. Every river loses a considerable portion of its depth and breadth. The lake Bivière, in Sicily, loses two-thirds of its dimensions in summer. The lake Cagliari, in Sardinia, and the Caspian Sea also, lose much. The sides of a river are more or less dry in summer; a large portion becomes half dry; there is just sufficient moisture for decomposition; and when the rivers are shallow, ague is prevalent.

Many places produce ague, which have only a small pond, or small lake; and many places are permitted to cause agues and aguish diseases, which are entirely within control. It is stated that an inveterate ague was induced by the canal at Versailles, though no larger than a fish-pond. MONFALCON mentions a fish-pond, at Chantilly, which was remarkable for its pestilential effluvia. There are many country residences rendered unhealthy, in consequence of ornamenting them with woods, and small lakes of stagnant water,—“*pièces d'eau d'agrément*.” The French call them “*lacs artificiels*.” Edinburgh is now anything but favourable to ague; but there was formerly a loch, called the North Loch, which was celebrated for it, until the spot was drained. When I say *ague*, I mean fevers of an aguish character,—whether remittent or intermittent; and many of these diseases are mistaken every day for real typhus. It is not necessary that a place should be situated low, nor need there be a marsh, in order to produce ague. If water be hemmed in at any height, of course vegetable decay may take place, just as though it were situated low. Fevers in ships are frequently *remittent* fevers; but they are mistaken for typhus. These fevers have often arisen from bilge water. Clayey soils will cause these fevers, because the clay retains the moisture, while gravelly soils let it escape, and therefore do not cause the complaint. Sir JAMES MAC GREGOR states that ague is not unknown in lower Egypt; but is seen only sporadically. The reason is, there is no stagnation of water, although a great mass of vegetable matter is brought down to the Delta. There is an agitation produced by the rush of the river, which has the same effect as too much water;—consequently putrefaction does not occur. STRABO ascribes the healthiness of lower Egypt to this cause. On the other hand, ague will continually occur in spots where there are stationary pools or puddles.

Captain SMITH states that he never witnessed fever in any of his ships, during his long service in the Mediterranean. Captain

PARRY, Captain COOK, and Sir HENRY BAYNTON, endeavoured to preserve the health of their crews. They washed their vessels out daily, by means of plugs, till the water came out clear; consequently no filth or decomposed vegetable matter could take place. On the other hand, in the "Powerful," a seventy-four, which had its company, on their voyage from the East Indies, nearly all disabled by fever, the cause was discovered to be the ballast of moist and putrid mud. The crews of sugar-ships are subject to great mortality, because sugar is a vegetable matter. It is the most unhealthy cargo a vessel can carry. The castle of Flamandville in Normandy, is built on high ground; but it has a stagnant moat around it, which contains a quantity of vegetable matter; and this sends forth pestilential effluvia. A family, resident at the place for a length of time, underwent a loss of mental and corporeal power, and was at last exterminated. It has been observed, that the same thing has taken place in the vicinity of many castles. The besieged and the besieging have both suffered, when baronial castles have been attacked. The sentries were the first affected; and the cause of the disease, was the moat surrounding the castle. In the middle of the last century, one third of the inhabitants of Bourgen Bresse were disabled, in consequence of ditches around the fortifications containing a mass of decomposed vegetable matter. At Havre de Grace, likewise, the soldiers were once observed to be attacked by giddiness, with violent head-ache, five minutes after they had approached the ditches; and they subsequently had violent fever. I have seen many cases of ague produced by the moat around the Tower of London; for there was a stupid negligence with regard to this moat, for some time; in consequence of which an accumulation of filth took place. I remember the case of a lady, who could not imagine how she had contracted ague, as she had not been in the country. At last she informed me that she had been in the habit of taking exercise on the ramparts of the Tower; and the circumstance of the moat occurred to my mind, and fully explained the cause of the attack. I believe the moat has, at last, been cleansed.

Harbours, moats, and mill-dams, have been the sources of ague. In a mill-dam, the stream is rapid; but the sides may be flat and moist. Flax lying upon the flax-grounds, in a state of decay, has given rise to the same complaint. This occurs in Italy and Germany; and these are instances of ague in dry, sandy, high places; from the hemp being dried there. The fevers cease when the drying is over. Indigo-manufactories have also been the sources of fever. The inundation of a cellar, and the passage of a drain under a house, have frequently rendered the latter unhealthy; and all the inmates have been more or less attacked by fever, from time to time. In the removal of stores, it has been observed that the water under them was impregnated with vegetable matter in a state of putrefaction; which has given forth exhalations; and the persons employed in their removal, have been the subjects of an attack of fever. If we reflect on the peculiar susceptibilities of various individuals, to the effects of morbid causes, we shall not feel surprised that persons will some-

times have ague, from the most trivial exposure to malaria. Some individuals, on approaching a hay-field, will be seized with asthma, particularly if the grass be sweet-scented. I believe it is the flower of the grass which induces the complaint; so that if they approach the fields at the time they are in flower, or in the hay-making season, they are attacked. It is said not to be an unusual occurrence, for individuals to be affected from ipecacuanha. Some have been attacked with asthma, from this substance being powdered in the house; and it is said that some have been seized with that disease, merely from a box of the lozenges being in the same room. We must have seen a person thrown into a state of violent salivation, from a single grain of calomel. I have seen it occur from the application of a little red precipitate ointment, or mercurial ointment, to a sore leg. From these various circumstances, we can imagine that some are particularly susceptible of the effects of malaria; consequently I can suppose sporadic cases of ague, occurring merely from a person passing decayed cabbage leaves. We are all aware that there is more or less putridity in them. They continually emit a noxious smell; and I believe that, even in the most healthy town, you may thus have the cause of ague. A very small collection of vegetable matter, may be supposed sufficient to produce this affection, in a person peculiarly susceptible to it. Consequently, when we cannot account for the existence of the disease from a person having been near a swamp, it is very probable that the case may be one of great susceptibility; and that a minute quantity of vegetable matter, or of malarious exhalations, has been wafted near the person. You should recollect, that these minute miasmata will extend to a great distance; so that, in very aguish seasons, places which are generally healthy, and not in the vicinity of much stagnant water, often become very unhealthy. Dr. MACULLOCH, several Italian physicians, and many able military gentlemen, consider that a single inspiration of a malarious exhalation, may be sufficient to produce the disease. There is no reason to doubt this; and if so, you perceive that we are not by any means to reject the belief, that the affection arises from such exhalations,—because we may not be able to say how a particular individual, in certain circumstances, has been exposed to them. Sometimes the exhalations have been so intense, that labourers, while breaking up ground in France and Italy, have died instantly, while others have been seized with giddiness; and some have died looking into a ditch, or drain, around which aguish fevers prevailed. Many assert that fever may commence half an hour after exposure to malaria. It is said that the influence of stagnant water, will extend three miles in Italy; that the ill effects of such pools, have reached from Agnano, as far as the convent of Camaldoli, which is situated on a high hill. LANCISI says, that as thirty ladies and gentlemen were making an excursion up the Tiber, the wind suddenly veered to the south,—coming over the Pontine marshes; and twenty-nine were instantly taken ill. They were all healthy, previously to their excursion; but the wind coming over the Pontine marshes, was impregnated with malaria, and affected twenty-nine out of thirty.

Dr. LIND says that when Commodore LONG's squadron lay off the mouth of the Tiber, two vessels that were close to the shore, were affected; while the rest, a little farther off, escaped. The difference of half a cable's length from the shore, has caused the crew of vessels to suffer or escape; yet Sir GILBERT BLANE states that, in the West Indies, (and he heard the same respecting the Channel leading to Calcutta) that malaria was observed to reach a distance of 3,000 feet and more. In Zealand the distance, he thinks, is far less; owing to the comparative mildness of the malaria, and also of the temperature. Some writers believe, that the hotter the climate, the farther does the malaria extend; and that if the heat be intense, and the quantity of vegetable matter great, it produces its effects at a considerable distance; but in cold climates, the vegetable matter and the heat being less, the exhalations are milder in their nature, and less copious; and therefore Sir GILBERT BLANE supposes, that in Zealand the distance is far less, than many other parts. He says that at the time of the Walcheren fever, no persons on board ship were seized with the disease, which was prevailing on shore; although the channel between Beveland and Flushing, was only 6,000 feet wide; and some of the ships lay nearer to one shore than to the other. Some think malaria will not extend to any considerable distance. Sir GILBERT BLANE states, that when the ships were watered at Rockford, he found that if they anchored so near the shore as to smell the land, they were affected; but if they remained only *two* cables' length from the spot where they smelled the malaria, no one was affected. Dr. LIND states that at Pensacola, a regiment lost 120 men, and eleven out of twelve officers who landed, but the whole crew of a man of war, lying one mile from the shore, remained healthy. Dr. MACULLOCH, however, believes that malaria may be conveyed to an indefinite distance;—that it is conveyed from the banks of the Thames, over the hills of Kent, even to a distance of some miles from the coast. He says that dogs will smell land, long before it is visible; and on the other hand that the sea may be smelt very far inland;—that whales or sharks may be smelt, both powerfully and offensively, as far as the spouting of the animal is visible from the mast-head; and therefore he says, if these things can reach such a distance, and odours produce such an effect, so may malaria or vegetable exhalations. Dr. MACULLOCH also mentions, that fogs and clouds go an immense distance; that it is a fact that malaria easily unites with them; and he therefore concludes, that as far as these will go, so far will malaria extend. He has found records in a ship's books, of malaria having produced fever, five or six or more miles from the shore; and of danger being instantly made sensible by the smell; so that the ship's crew would go below, or weigh anchor, and run to sea. He says it is well known, that points in the coasts of Suffolk and Norfolk, and the eastern coast of Scotland, have ague, where there is no local source of malaria, for even a greater distance than that just mentioned; and therefore he contends that it must be brought from Holland, and the northern shores of the continent. The east wind will cause, and even renew aguish

diseases; but it can no more be *the simple air itself*, than pure water, (oxygen and hydrogen) can produce ague. Wind, if pure, cannot be poisonous, any more than pure water; therefore, whatever is the noxious property, must be (as in the case of water) contained in it. The east wind is perfectly innoxious, in the regions which it reaches after having passed over healthy countries; and, on the contrary, other winds are as unhealthy, in some parts of the world, as the east wind is here;—that is, where those winds come over a marshy district, exactly as our east winds do. Dr. MACCULLOCH proceeds to observe, that land under the trade-winds, and ships in the equatorial seas, escape; and that St. Helena being exposed to the east wind, ought never to be free from ague; whereas that is not the case. If the east wind blows over a frozen continent, or simply blows across the sea, though of course in its passage it must bring moisture, yet it is found to do no harm. To be injurious, it must blow over the land, where there is vegetable matter with moisture. For this reason, in one half of the globe, the east wind is exceedingly injurious, from March to October. In French Flanders, the south-west winds do the same harm, as the east wind in other countries. The east wind in summer is dry; hence it has less conducting power; and hence, although we get ague from the Dutch ditches in spring, we do not get their remittent fevers of autumn; the east wind being so dry at that period, that it will not conduct the malaria; for a certain degree of moisture is necessary for its conveyance, as well as for its production. To shew the healthiness of the east wind, where it does not pass over marshes, I may state that it is the east wind that is the salutary breeze, of the burning islands of western America. While many parts of France, Poland, Germany, and Russia, never feel its injurious effects. Dr. MACCULLOCH states that although the east wind, after sweeping the burning sands of Africa, makes the side of Sardinia which is exposed to it a desert, and in Minorca will not suffer an orange-leaf to protrude beyond the garden wall, it is before the east wind that Mount Edgcomb roots its splendid trees even into the sea, and does not dare to shew a leaf to the western winds; while in Southampton river, it is precisely the reverse. But the east wind may be injurious in another way; either from its excessive heat and dryness, or its coldness and moisture. The Harmattan, though excessively hot and dry, will not produce ague. We all feel unpleasant sensations from the east wind in spring; not because it produces ague, but from its excessive cold and moisture. Some parts suffer more, however, if hilly; and frequently the immediate vicinity of a marsh will escape in some measure, while the people of a village or a town at some distance, if situated on a hill, will suffer extensively;—from the circumstance of hills attracting moisture, and every thing united with it, in the clouds. At Malta, the malaria produced under a cliff, never affects the spot itself; but it produces frightful consequences on the people of a village situated above it. At Weymouth, it is said that the back-water rarely affects the people living on the spot; but that those living at a distance suffer. At St. Austle, (or is it

Austel?) in Cornwall, the disease prevails, owing to some marshes which are at St. Blaizy. At Erith there is less ague than we might expect; but the people living in the houses that are situated above it, frequently suffer. If currents of air pass over a swamp, the part of a country exposed to them will necessarily suffer; and if there be a peculiarity in the current, you will have places affected which you would not *a priori* expect to suffer. Captain SMITH, in his Statistical Table of Sicily, mentions seventy-six unhealthy towns and villages; and out of that number, thirty-five are situated on hills or declivities, and are at a great distance from a marsh. It is supposed that the southern wind, blowing over a marsh, and tending upwards by its temperature, affects people in towns situated on high ground;—the south wind being warm has a tendency to ascend; while the cold northern wind, does not affect those living in houses on the other side of the swamps, though placed equally as high. You can easily conceive of a swamp, with towns on each side. When the wind blows from the south, it will ascend, and the people in the high houses will suffer; whereas if it blow from the north, it will not ascend to a house of the same elevation; but will remain near the earth, and thus the people will suffer very little, or perhaps not at all. It is said that on the high road to Chatham and Faversham, in Kent, comprising a distance of twenty miles, the effect of malaria is only noticed on one side of the road. The lands which furnish it, are situated about a mile distant; but it is only the inhabitants of detached houses, on one side of the level road, that suffer. You should however recollect that the dews will spread in a similar manner;—that they will spread to a particular spot, or stop at a certain bush. You will notice a similar circumstance in the case of hoarfrost. As far as these extend, so may malaria; and they will explain the singularity of such an occurrence in some instances. Dr. BANCROFT was informed, that the inhabitants of only one side of a street in Rome, were affected by ague, or aguish diseases. BAGLIVI states that the healthy districts of Rome, were separated from those that were unhealthy, by a very short distance. A circumstance like this is observed in Cadiz, and in many American States. In the latter, the reason is apparent; for some of the streets are built very low and near places where there is stagnant water in large quantity. The reason why low situations produce most malaria, is in consequence either of the weight of these exhalations, or of their uniting with moisture, and producing their effect when the moisture is deposited, which it generally is, on the ground; so that the lowest districts are usually the most dangerous; and this accounts for these exhalations being most dangerous at night; for the cold is greater at night, than it is during the day; and from the cold being greater, moisture is deposited; and with the moisture, malaria. It is very probable that the moisture has power to dissolve these exhalations;—judging from the stench which arises from pools and privies in damp weather. Every thing that affords an offensive smell, becomes worse in wet weather; and, therefore, these exhalations will also perhaps, rise far more in wet, than in dry weather. The effect of moisture

is seen in the increase of illness. Difference, with respect to elevation, in causing liability to ague, is illustrated by the fact, that in Spanish Town Barracks, in Jamaica, there were three cases of fever in the lower story, for one in the upper. Sir GILBERT BLANE states, that he was informed by a medical gentleman, that in 1781, at St. Lucia, one regiment, situated on the top of the hill, lost two hundred and seventy-one men from remittent or intermittent fever; while another regiment, on the sides of the hill, lost four hundred and eighty-six men. The hill was called "Morne Fortuné;" and was about eight hundred and seventy two feet above the level of the sea. At Walcheren, those who lay in the upper stories were far less liable to disease than those in the lower; and if they caught ague it was much milder. Sir GILBERT BLANE says, he was informed by Dr. FERGUSON, that at St. Domingo two-thirds more were taken ill on the ground-floor than on the upper floor. In Italy the difference is so great, that an erect posture is preferred to a lying one. This may be a general rule, yet there are exceptions to it. In certain parts of Norfolk, danger is confined to the upper stories; but in such places there must be a particular current, which wafts the malaria in that direction. The great danger at night is always strikingly illustrated. Dr. LIND says, that two hundred and eighty men went on shore at St. Thomas's, from the *Phœnix*, in 1766; and all but three died. The ship's crew went on shore, in parties of twenty or thirty,—rambling about the island; but not one of these that did not remain at night suffered. He also states, that at Batavia, a boat belonging to the Medway was manned three times; every one having perished, because the men had to attend duty every night. A cold night, after a hot day, is much the worst; for during the heat of the day there is more disengagement of malaria; and therefore, when the night comes on, there is far more to be precipitated. Cold and wet are always far more operative after heat. It is supposed that the evening, in Italy, is more dangerous than night; and that there is no danger after ten o'clock. If this be true, I presume it arises from the whole quantity of malaria being by that time deposited. The effect of night, however, must be ascribed in some measure to sleep, for all morbid causes act more powerfully in sleep, than in the waking state. Sleeping on the ground at night is injurious; not merely because the person has lain there during the night-time, but because he has lain on the lowest spot, when there has been more malaria than in the day; and because the body is less capable of resisting it than in the day. MUNGO PARK says, that the rain had not commenced more than three minutes before many soldiers fell asleep;—that they seemed drunk, while others vomited. Therefore he felt convinced, that malaria was precipitated with the rain. He also states, that he felt disposed to sleep in a storm, and could not help it, although he knew the danger from his being on damp ground. Dr. LIND states, that the most unhealthy rains in Guinea are those which take place in the wet season,—appearing to insinuate that malaria is precipitated with the rain;—that in forty-eight hours, the rain rotted their shoes; and when their clothes were hung up to

dry in the sun, they were full of maggots in a few hours; thus shewing, in all probability, that much injurious matter was deposited with the rain. As the rain descends more and more, there is generally less and less unhealthiness. This may be ascribed, first to the quantity of malaria deposited by the first rain, and secondly to the rain falling to the earth, and producing much moisture; so that the vegetable decomposition will not so easily go on. Hence, again diseases increase when the moisture declines. It has been supposed that a mixture of salt water with fresh, prevents this injurious decomposition. This is erroneous; for the salt marshes, principally situated in the south, will, in the summer, give rise to ague. For example, around the Dol, in Normandy, where there is a salt marsh, scarcely a person escapes ague. In Holland there is very frequently a severe intermittent fever, after an inundation of the sea; and even when the place is well washed, as Herne Bay, and around the Reculvers, aguish fever occurs. On the other hand, it is said that a certain portion of sea-water augments the prevalence of this miasmata. This is not surprising; because it is a mere hypothesis that salt-water prevents it; for sea-weed being vegetable matter, it has been the source of fevers of this description. It certainly is very probable, that certain plants and certain soils are more favourable to the production of malaria than others, for sometimes there is malaria in districts where you would not suspect it;—where the grass looks fresh and green, and you observe no signs of decomposition; whereas in other parts, where there is a degree of decomposition, persons are perfectly safe. A friend of mine, travelling in Syria, saw a spot of grass fresh and green, though rather moist; and he intended to pitch his tent there for the night; but the people of the country dissuaded him from doing so; and informed him that whoever remained on that spot, at night, was sure to be seized with severe fever. There was nothing in the appearance of the grass that could lead him to suspect any thing of the kind; but of course the lower portions of it were continually dying and decomposing. Some believe that the different kinds of ague arise from a difference of vegetable matter. In Germany, it is said, tertians particularly prevail; in Italy, quotidiens; and that in Hungary, fevers of this description are particularly attended with petechiæ. The exhalations of the Pontine Marshes are said to produce fevers with short intermissions. Holland is remarkable for producing all sorts of fevers;—quotidiens, tertians, quartans, and every other kind. Africa, Spain, and America, have these fevers attended with black vomit, and with a yellowness of the skin. In some parts of Italy they are attended with apoplexy; and in many parts they are attended by neuralgia. In India and Africa the liver chiefly suffers; at Walcheren the spleen. I am not aware whether these peculiarities are to be explained by a variety in malaria. There is one description of bog which does not produce malaria; that is *peat-bog*. There is no putrefaction in it; decomposition having taken place in a peculiar manner. The vegetable matter becomes carbonized; and there is not sufficient heat to cause putrefaction; but it is stated that when peat moss is in a certain lati-

inde, and on a certain level, it can putrefy; and then I believe ague does prevail. If animal matter be thrown into a peat-bog, it will not putrefy; but it is stated that where peat moss is placed in other situations,—where it is warmer and upon a proper level for moisture,—it will putrefy and produce ague, the same as other kinds of vegetable matter. Thousands of persons are annually employed in many manufactories, such as sal-ammoniac manufactories; and yet no person is known to have ague from them. Indeed, so far from it, that the most crowded places generally escape intermittent fevers. Thus it is vegetable, not animal matter, that produces ague. A part of Rome, inhabited by the Jews, called the “Judaicum,” is full of animal filth; but it escapes ague, while people living in the superb streets suffer from it very much. Tobacco smoke and fire appear to keep away agues. Malaria not being the produce of dead animal matter, or effluvia arising from living bodies, but of vegetable exhalations,—the more men and animals there are crowded together the less access is there for the malaria; and those who live in the most smoky districts, are situated in the most favourable place with respect to ague. In times past, the smoke of coal was thought to be injurious; and it was made a capital offence to burn coal in this city, and farges were only permitted in the neighbourhood. Sir GILBERT BLANE states, that in the Tower there is a paper relating to a person who was executed for this offence, in the reign of Edward I. NAPOLEON BONAPARTE, when with his armies in Italy, commanded fires to be burned to a great extent, to keep away malaria, and he was successful; for the heat was useful by dissipating cold and moisture; so that you perceive coal is now considered by some as a great promoter of health.

LECTURE XXIV.

REMITTENT FEVER.

DR. LIND states, that when the ship of war, “Edgar,” was off the coast of Guinea, in 1775, the company were sickly; and that many of them died, from fevers of an anguish description; but among the crew of the sloop of war, which always accompanied her, very few were ill, and not one died. In the sloop, there was a fire for cooking, on the deck, where the men lay; whereas in the “Edgar,” from particular arrangement, there was no smoke between the decks. Thus there were two ships off a country, affording a vast quantity of malaria; and the crew of the one remained healthy, while that of the other became diseased. Intermittent and remittent fevers, are not contagious; but formerly they were thought so; for Dr. FORDYCE states, from his own observation, and from the opinions of others, that ague is contagious. Dr. CLEGHORN and Dr. WELLS both account for Dr. Fordyce’s opinions by stating, that this physician fancied that continued and intermittent fevers were mere varieties of the same disease; and as it appeared in those days, that continued fever

was contagious, so he was compelled to maintain that ague was contagious likewise. Dr. Cleghorn's mistake arose from his having observed, that most of those who were sick in Minorca, had the disease; and he forgot that it did not arise from emanations from the sick, but from the situation. There is no proof that a disease is contagious, even if you imbibe it by visiting a person labouring under it; for he may be residing in a spot which has produced the disease. In order to prove the contagiousness of a disease, there should be a number of instances of persons going from the district where they contracted the affection, to a healthy part, and there propagating the same to others. Formerly, even scurvy was thought a contagious disease. The chemical nature of marsh miasmata, is unknown. The air of marshes is said not to differ, chemically, from the air of any other part, with respect to its quantity of oxygen; and there is reason to suppose, that it is either a deficiency of oxygen, or an excess of carbon; or that it is carburetted hydrogen that renders the air pestilential in this respect. DE LISLE states that malaria has no smell. However it is known that these exhalations may be suspended by aqueous vapour; and it is said, that they never rise, but with some lighter body;—that they require to become so suspended, to rise at all. But being suspended in this way, they are even more deleterious than contagion; for, like contagion, a momentary application is sufficient, in many cases, to induce the disease; but unlike contagion they may be wafted, and produce their effect at a very considerable distance;—whereas contagion spreads but a short distance; and after that distance is destroyed. Malaria, like other gaseous bodies, very easily meets with a barrier; so that a gauze veil is said to be very efficacious, in Italy, in preventing its baneful effects on the human system. Sometimes the exhalations from malaria, will cause instant death; and again, persons who have been scarcely exposed to them, have been immediately seized with vertigo, vomiting, and syncope; and, from that time, they have been affected by regular remittent or intermittent fever. In South Carolina, the shortest time which elapses between exposure and the appearance of the complaint, it is said, is from eight to ten days; perhaps, because there is less heat there than in many other parts. Dr. WELLS believes that autumnal agues of that part, do not appear until spring;—that is, the agues which are seen in spring, are the result of exposure in the preceding autumn; because, he says, strangers visit South Carolina in the spring, without danger. Dr. LIND has seen agues take place the morning after exposure. Dr. BANCROFT has seen them occur instantly, and then others which did not take place for nine months afterward. He ascribes agues of the spring of the year, to the previous autumn; because he has seen persons seized with ague after they have returned to England from a warmer climate, where they have been exposed to miasmata; and that they have experienced the disease at too early a period in the year, for it to have arisen from malaria in this country. Persons here employed in harvest-time, in unhealthy districts, in autumn, have not been affected until the east wind blows in the following spring. I have seen many cases of per-

sons who have left an aguish part for months, when by accident having got wet, or being exposed to a cold damp wind; they have been seized with ague. Dr. MACULLOCH doubts these long intervals; but I do not. By habit, individuals become insusceptible of ague; and by habit they cease to have ague when exposed to these exhalations; or if they do have ague, it is of a very mild description. This is very common in France, Italy, and Sicily; and those who are chiefly susceptible, are those in whom glandular disease has been induced. General MONNET found that there was only one half the illness in a regiment, in a malarious district at Walcheren, the second year, that there was the first; and the third year his men were not ill at all. I remember the case of a lady making an excursion up the Thames with a party; and she alone caught an ague. She had always lived in Edinburgh,—a high, dry, healthy spot; and the rest of the company were inhabitants of a place where malaria prevailed. It is asserted that a place in order to season a person perfectly for another, must be situated between the tropics, and not have a cold winter. Gibraltar will not season a person for a residence in the West Indies, because it is not situated between the tropics.

Whether persons have had ague or not, if they are continually exposed to malaria, the constitution becomes impaired; they acquire a dull heavy look; and are bloated, or emaciated, and shrivelled, pale, sallow, and weak. Sir GILBERT BLANE asserts that, at Walcheren, the inhabitants when they saw one half of the English ill, would not admit that the cause was their filthy ditches; but said it arose from bad diet, and bad habits; and they were far less subject to aguish complaints than strangers. The liver and spleen are much disposed to become diseased; and dropsy is apt to supervene. In the most unhealthy vallies of Switzerland, the poor inhabitants are shrivelled; the young look aged, and persons in the middle stage of existence appear in the greatest state of decrepitude; for there is, in these districts, a large quantity of malaria. There is immense injury caused by malaria. The average duration of human life in England, is fifty years; in Holland it is only twenty-five; and in some pestilential parts of France, the average is but twenty-two; in others only eighteen or twenty; and in some it is even so low as ten. In some districts of Africa, and in the East and West Indies, the average is about the same. The Dutch people living amidst malaria, will not admit that it is injurious; just as a person of filthy habits, believes he is as clean as he ought to be. Many individuals, when they come to reside in an unhealthy place, although well informed on these things, will be obstinate; but they are made to repent it by the sufferings they endure. Captain CLAPPERTON, Mr. PEARCE, Dr. MORRISON, and Mr. HOULTON, surgeon,—who went to Africa, lay on the banks of a creek all night. The next night they lay in a market-place; and the following day Captain Clapperton was seized with fever. In two days more, Dr. Morrison was seized; Mr. Pearce, the next day; and LONDER, their servant next. Mr. Pearce and Dr. Morrison died soon; and Mr. Houlton and Captain Clapperton died afterwards. These gentlemen were all warned of their

danger; but like the Dutch people, they were obstinate; and they paid the fearful penalty. The Dutch have surrounded themselves with dykes in their own country; and in the East Indies, where there is not the slightest necessity for such things, they are also surrounded by them. Some state that brutes suffer from ague, in unhealthy places. Dr. MACULLOCH states that he heard of a dog at Guernsey, that had a tertian ague. He also says, that epizootic diseases often prevail at the same time with marsh fevers; and that in St. Domingo, dogs are always affected first. Malaria is not the occasional, but the constant scourge of the earth; producing not only these fevers, but dysentery, cholera, and occasionally neuralgia. It causes an intermittent or remittent character to be given to other diseases; and undermines the health, when it causes no disease. In Italy, France, Holland, Greece, America, Asia, and Africa, malaria abounds to an immense extent. We know nothing of it here, compared to those parts; but formerly in England it was far worse than it is now. We are all aware that Southwark was once an entire swamp; and at Westminster there is a gate, called the *Marsh-gate*, from its being situated on a spot where formerly there was a marsh. From improvements that have been made, ague is now rare. Before the fire of London, ague raged like a destroying pestilence. Between 1667 and 1692, no less than 2,000 human beings perished in London, of dysentery, arising no doubt from the same cause as ague; but the reduction in the mortality has been great. In 1728, there were only forty-four deaths from ague; in 1730, only sixteen; and for the first ten years of the present century, there are only four deaths recorded. Within the last five or six years, through the country and in London, though they have not increased to what they were formerly, yet there has been an increase. It is said by Dr. MACMICHAEL, that during the few years that ague prevailed so much, the average heat was greater than when it disappeared; which caused more vegetable decomposition. When persons have once been affected with ague, or have it upon them, they are much more disposed to exhibit a more or less aguish form of any other disease, under which they may labour. Thus, when a person is the subject of ague, it is very common for diseases to become more or less intermittent; and this is more especially noticed in aguish countries. Rheumatism, ophthalmia, vomiting, and purging, may be all intermittent,—and even periodical. Independently of malaria many diseases will become intermittent. Insanity is occasionally intermittent; for I have seen a person mad once a year, or once in three years. Palsy is sometimes intermittent; and in one case I saw it periodical. It came at one particular hour of the day; but the individual had sometime before been affected with ague. I am satisfied that we do not ascribe diseases to malaria, when they really do arise from that source. You will frequently see sporadic cases even of ague, which cannot be easily traced to malaria; but there is no doubt that, if we could ascertain all the circumstances, we should discover that the person had a remarkable tendency to it.

The exciting cause of ague is no doubt malaria; but sometimes it will act as a *predisposing* cause. It will lie dormant in the system;

and the person's getting wet through, will readily excite it. The *proximate* cause of ague,—the real essence of that state,—which is always present when the symptoms occur, is unknown. We cannot say it is a peculiar state; for a person in the intermission of ague, is perfectly well. There is often no disease to be found, whether inflammatory or any thing else, of any particular organ. In agues which occur in the lower parts of Kent,—“In Romney Marsh, and its immediate vicinity, for instance, where malaria prevails, the intermissions always leave great debility; so that we have seen persons, otherwise healthy, who have had an attack at one o'clock in the day; and after going through the three stages, have not been able to maintain an erect posture, for more than an hour after the ague had left them; and for the whole of the remaining portion of the day in which the attack occurred, they have had more or less fever. This marsh was once inundated by the British channel; which is now prevented from overflowing that fertile level, by immense embankments; and agues which attacked the inhabitants, were considered incurable, except by change of residence. The writer of this note laboured under ague for three months; and had administered to him every remedy then known to possess a power over the affection, but without curing him; and the day before he left his native home, he had a severe paroxysm. He came to London on the following morning, and as he had his last attack at three o'clock in the afternoon, of course he expected the next paroxysm at four; but all he felt at that hour was a slight degree of chilliness; and the ague never paid its *unwelcome* visits again.”

Ague frequently cannot be cured by antiphlogistic means, though it certainly may sometimes, by any thing which makes an impression on the system. Again, inflammatory diseases are not cured by sulphate of quinine. This disease may be inflammatory, and frequently is so; and requires antiphlogistic treatment; but its essence is not inflammatory. It may be of an inflammatory type; but there must be something more than inflammation. We cannot say how measures cure ague, that are specifics;—such as bark. It certainly cannot be by curing the inflammation, nor by irritating the stomach; though some say that bark acts in this way; but if this were the case, brandy and cayenne pepper, would do as well as corrosive sublimate. I cannot believe that specifics operate by strengthening the patient. You might give a person full diet, regular exercise, and improve his strength in every way; yet you would not cure his ague; whereas a few grains of quinine,—a quantity too small to strengthen the system directly,—would put a stop to it. Arsenic, which cures ague, is not a tonic. It will debilitate the body, cause it to tremble, and depress the powers of the constitution; and yet a small quantity will cure the disease. Why remedies of this sort are termed tonics, I do not know. We sometimes have a little difficulty in distinguishing ague from hectic. The latter is an affection which lasts some length of time; and so may ague. It is termed “hectic,” from being placed in the habit,—being a continued disease;—lasting for a length of time. It is more or less intermittent; and resembles ague also in

this respect. The rigors, however, are irregular in hectic ;—and each of the stages is irregular,—one coming before the other, without any kind of order. After a time there are no rigors,—nothing but sweating ; with constant feverishness, and quick pulse. The feverishness is excited by taking the slightest quantity of food. There is generally profuse sweating on falling asleep. In ague, when the sweating is over, the person is comparatively well ; but in hectic, so far from being better, the person is weaker. There is a red patch on the face in hectic, as well as on the palms of the hands, the soles of the feet ; and the tongue is moist, and usually red. The urine does not contain the red, brick-dust sediment of fever ; but a pink deposit. In hectic there is not the exposure to the cause of ague ; there is not the aguish face ; there is frequently local disease,—suppuration in some part of the body ; and there is an exacerbation at night, and often another at noon. If you take any one of these symptoms by itself, you will not be enabled to distinguish this disease ; because ague is irregular, recurs at no certain time, and is probably even almost remittent ; consequently you will have to make the distinction between intermittent and remittent fevers. Sometimes in ague, you will have nothing but profuse sweating ; sometimes you will have ague and hectic together.

I have seen hectic in a person labouring under phthisis ; where there were rigors, increased heat, and sweating, from ague ; and increased heat and sweating from suppuration ; and there was an aguish face at the same time ; so that it would have been difficult to make the distinction between the diseases ; only that I was aware suppuration was going on in the lungs. If you are careful you will seldom be deceived. Now and then there will arise a difficulty ; but that will occur in instances where the hectic fever is attended by great rigors ; and where, on the other hand, ague is assuming a remittent rather than an intermittent character ; and the patient is labouring under a local complaint. Rigors will occur, without ague or hectic, from mere nervous debility. Persons will experience rigors, and will not be able to perform their avocations in life, and their teeth will chatter,—all from great depression of spirits. Persons with stricture are subject to rigors ;—some always have them when a bougie is passed. Should there be a stricture, and rigors come on, you ought to doubt whether there is ague. When rigors occur from stricture, or some other disease of the urethra, there is usually no sweating or heat ; neither is there an aguish face, nor can you ascertain that the person has been exposed to malaria. If you are in doubt it is always best to give the remedies for ague ; for the sulphate of quinine can do no harm. The diagnosis of intermittent and remittent fever is a mere circumstance of degree. Should there be a *perfect* intermission, we term it "*ague* ;" if it be *imperfect* we term it *remittent fever*.

Should ague be conjoined with a local structural disease, that part of your prognosis must rest on its own foundation ; but ague you may always promise speedily to cure. Should it be a quartan, you cannot promise to cure it so soon as if it were a tertian or quotidian ;

and it is the same if you have an autumnal, and not a vernal complaint. A vernal ague generally yields so easily that it frequently ceases spontaneously, after a few paroxysms,—some say after seven. It usually ceases when the warm weather arrives; and will frequently do so when a person changes his residence. In hot climates, and even in England, many intermittent fevers become remittent; and from being remittent they will become continued, unless vigorous measures are adopted; and they may rapidly prove fatal, from congestion of the head, thorax, or abdomen. We should give a guarded prognosis in hot countries, and in hot weather in this country; for in hot climates it is common for persons to die early in the attack, owing to congestion. This may occasionally occur in England, from some peculiarity in an epidemic. We have always therefore to consider, when giving a prognosis, whether there is any peculiar form of ague present; and should this be the case, and the disease is sometimes fatal, we must be cautious in our prognosis; although, without that, we should give the usual prognosis. We have no conception of what aguish fevers, remittent or intermittent, are in hot climates. They are termed “pernicious fevers” in Italy; for as soon as a person is seized, he may fall into a comatose state, from which he never recovers. After death the greatest degree of congestion is observed in the lungs, the head, and the abdominal viscera.

LECTURE XXV.

TREATMENT OF INTERMITTENTS.

THE remedies employed in the treatment of intermittent fever, may be divided into those which we have recourse to in the intermission of the disease, and those which are employed during the paroxysm. The greater number of the latter are adopted, rather with the intention of alleviating, than of curing the complaint; and they of course, must be very different, according to the stage in which they are employed. In the cold stage, there should be plenty of covering for the patient, as well as warm drinks; and some employ the warm bath, but I think it better to have recourse to warm air, which may be conveyed to the patient by means of a tube, continued from a spirit lamp,—the bed clothes being raised. In this way, you surround the individual with hot air, in any quantity you choose. A thing like a funnel is placed near the bed, with a spirit lamp under it;—a tube goes from the extremity of this funnel-shaped body, and is conveyed under the bed clothes; and by this the air is dispersed throughout the bed. The degree of heat can be regulated by altering the proximity of the lamp to the funnel. If the cholera should again make its appearance among us, this will be considered the best mode of applying heat externally; and on this account particularly, that when you employ vapour, the patient, for the most part, must be in a sitting posture, or taken out of bed, and more or less exposed after the bath; but it is imperatively necessary to avoid all this; and, in great ex-

haustion, to keep your patient in a horizontal position ; and by the contrivance we have mentioned, you need not take him out of bed, nor remove him from the horizontal posture. Thus you may employ heat to an extent sufficient to warm the surface thoroughly ; and you should also employ friction, especially to the extremities, and even to the ears. Should it be proper to apply heat, during the intensity of intermittent fever, I think this contrivance will be found to be much preferable to the hot water or vapour bath. Warm liquids appear to be indicated ; but you must be cautious not to give real stimulants. It is very good to apply caloric by means of hot liquids ; but by administering stimuli, such as brandy and wine, you risk doing more than you intended to do ; for you may increase the subsequent hot stage, and induce delirium, and cause congestion and inflammation of the head, and internal organs. I prefer giving hot diluents, or at the utmost hot spiced diluents, rather than alcohol or other permanent stimulants. There is a remedy that has been recommended, in favour of which there is strong testimony ;—that is, venesection. This, I believe, was first put into practice by the late Dr. MACKINTOSH. In the cold stage of fever, the circulation is much deranged ; the internal parts are in a state of congestion ; the head, the lungs, the heart, and all the organs, the veins of which go to form the vena portæ, as well as that vein itself and its divisions, are in a state of turgescence ; and if you remove a certain quantity of blood, there is no doubt you give relief to nature. It is known that the loss of the smallest quantity of blood relieves, more or less, the suffering of the patient. In hot countries, where fevers are attended by great congestion, which speedily proves fatal, it must be a great point to bleed early. Dr. MACKINTOSH states, that the cold stage is shortened by this practice ; that the hot stage is either prevented, or greatly diminished in violence and duration ; and that many cases are entirely cured. Dr. STOKES, in the *Edinburgh Medical and Surgical Journal*, for 1829, states, that venesection is more or less useless, and more or less injurious, in different respects ;—that it is beneficial in removing the local symptom (which is just what we should suppose)—the symptoms of congestion about the chest and abdomen ; but he says, he was always compelled to exhibit quinine, sooner or later ; and he adds, as a reason for limiting the performance of venesection to those cases only, where there is coma or inflammation, that a gentleman had informed him of some patients treated, by bleeding, who never recovered. I imagine there can be no doubt, that the practice is not so injurious, as one would suppose beforehand perhaps ; but that, on the contrary, it often does a great deal of good. It removes the local symptoms ; it often shortens the complaint ; and occasionally cures it. I think it is rather a means of alleviation, for the most part, than a cure ; but I have no doubt that in other countries, where congestion is extreme, it is imperatively necessary. I have never seen a case of ague, which I thought required such treatment. I have given you the opinions of others ; but I have never met with a case, which I could not cure by sulphate of quinine. Speaking of venesection in ague in general, and not in the

cold stage in particular, Dr. LIND states, that himself and two other gentlemen, had each three patients affected with ague; that they bled all their patients; and each lost one; but this is stating but little, unless we were informed of the nature of the cases. Dr. MACKINTOSH states that it is always safe; that it often shortens the disease, and sometimes cures; but as I can always cure my patients with sulphate of quinine, I do not wish to impair their powers by venesection. I think, at the same time, we should not neglect to employ it, when we find symptoms of great congestion; and should we fear that the next attack will be attended by fatal consequences, opium is found to shorten and alleviate the cold stage. I have exhibited it with great success; but still if I found great congestion of the head, or of other parts, I would certainly bleed in preference to giving opium. Some have employed a tourniquet to an extremity, in order to produce early excitement; but we conceive that internal congestion must be increased by this remedy. Should you compress the femoral or brachial artery, there will be a larger quantity of blood thrown upon other parts; and if such a remedy does good, it must be by producing such a degree of this congestion, as would induce nature to attempt its removal; so that the body will be precipitated out of the cold stage, more quickly than it would otherwise have been. When the hot stage commences, we have to give cold drinks, and take the clothes off; and sometimes to employ the tepid bath, or warm effusion or ablution. I think there would be no injury done, by employing cold effusion or ablution; nor should I hesitate to bleed during this stage, if there were any congestion or inflammation. It is said that persons have been cured by immersing themselves in a pond; but I should say this is dangerous. Opium has been found of great utility in this stage. Dr. LIND states, that he has found it shorten its duration and lessen its violence. Thus it appears that venesection is admissible in the hot, as well as the cold stage; and that in both, opium is beneficial. When the sweating stage commences, the paroxysm is near its termination; and if the patient likes, you may give him warm diluents, and put on more clothes than in the hot stage; because he is getting cool gradually. Do not permit a draft to blow on him; though you may attempt to lessen the duration of this stage, which may run on for hours, by diminishing the clothes, and cooling him gradually; but you must be cautious. I think there is no danger in the hot stage from tepid ablution; but we must be more cautious in the sweating stage; and in this stage narcotics, and all things which debilitate, would be injurious; for nature is then exhausted, and requires repose; and to lower her still more must be wrong, and therefore unnecessary. Health is about to be restored; and the paroxysm is nearly at an end. Should the patient be very faint, you may give stimulants; but, before you give them, you must ascertain if any local congestion or inflammation be present. The principal measures for curing this disease, are certainly to be employed in the intermissions; unless blood-letting be considered one. By "intermission" we mean the period between one paroxysm and another; but by "interval," we mean period of the paroxysm.

and the period of the intermission together. The two principal remedies are *bark* and *arsenic*. Peruvian bark was brought from South America, in 1632; and so highly was it estimated, that in year 1658, sixty florins were given for twenty doses. Like all good medicines, it was then made a nostrum of; until at length many regular practitioners wrote against it, and excited so much prejudice in the public mind, that about thirty years afterwards, several hundred pounds weight of it were lying at Piura, without purchasers. An alderman, while employing it to cure ague, died; and it was said immediately that it killed him. OLIVER CROMWELL was not permitted to take bark; and he died of ague. SYDENHAM was first opposed to this remedy; but afterwards gave it boldly, and warmly advised its employment. So violent were the disputes occasioned by the use of this medicine, that those who used it were denominated *murderers*, and denounced as unfit to practise. SYDENHAM gave it in larger doses than other practitioners; and he administered it in the intermission, and not during the paroxysm; for there is no doubt that it may do injury during the paroxysm. It may overload the stomach and increase congestion, if it be given in large quantities, during the fit. SYDENHAM, by exhibiting it in the intermission, and in larger doses than before, increased its efficacy. It is a fact, that the utility of medicines is not sufficiently esteemed; because they are not given in sufficiently large doses. Thus many gentlemen will give a medicine, and if it does not appear to act directly as they wish, they will relinquish it,—without ascertaining whether it will really do good or not. If bark does not cure the disease as rapidly as you desire, it should be exhibited in the largest dose the patient will bear. A drachm or two, every two hours, is frequently requisite to cure the disease. Dr. GREGORY was told by a practitioner, that a friend of his, in the delirium of ague, took from three to four ounces of bark; and he was cured from that moment, without any ill effects being produced. The bark should be finely powdered; because if it be not, a very small quantity only will come in contact with the stomach and intestines, and its efficacy will be lost. There are three kinds of Peruvian bark;—the pale, the yellow, and red. The latter is preferred by many, as being the most powerful; but though it is so, the stomach does not bear it so well. Dr. CHAPMAN of New York, Dr. SAUNDERS, Dr. RIGBY, and Dr. SKEETE, all wrote on the red bark; and pronounced it more efficacious than the others. Milk is one of the best liquids with which bark can be given. Some give the powder in decoction; and others give it as an electuary; and it may be administered with any syrup or sweet substance, mixed well, and diffused in some liquid, so as to be drank. It will occasionally disagree with the stomach; and therefore it is desirable to mix something with it. Pure bark will cause nausea, and perhaps vomiting, in some persons. In others it will cause purging; and in such cases a few drops of the tincture of opium, will often enable the stomach and intestines to bear it. Should the stomach only be disturbed, an effervescing draught or a small quantity of prussic acid, will answer the purpose, and enable the stomach to bear the bark; but should the intestines be deranged

at the same time, opium is perhaps one of the best things to administer; because neither an effervescing draught, nor prussic acid, will decrease the purging. You may bring a patient to bear bark, by commencing with small doses, and then increasing them. You may give it to children in the form of clysters; and some persons have, it is asserted, been cured by its external application, by tying it up in fine muslin or linen, and applied to the body. I heard Sir HENRY HALFORD state, that he had ague when a child; and was cured by wearing a jacket of bark. A double jacket was filled with powdered bark, and placed next the skin. It has been discovered that the power of Peruvian bark resides in two of its constituents, called "quinine," and "cinchonine." Of these the former is chiefly used in the form of a sulphate. These substances abound more in the red bark; and therefore we see why it is, that the red bark was deemed by many to be the most powerful of the three kinds, as a remedy. Quinine is said to abound more in the yellow bark,—the *cinchona cardifolia*; and cinchonine in the pale bark,—the *cinchona lancifolia*. I have cured ague by employing the quinine simply, as well as in the form of sulphate;—a few grains, given every eight hours, will in England generally cure the complaint. Some give a grain, every two hours; and they assert it answers very well; but other practitioners give a larger quantity, at more distant intervals. Either way it is beneficial; but should the stomach reject it, it would be better to give only a grain or two every two hours, during the twenty-four, rather than a large quantity at once. I have seen the best effect produced by giving a large dose, immediately after the paroxysm. It is very good to administer it *before* the paroxysm; but I think it is better to give ten or twelve grains as soon as the paroxysm is *over*. But you do not by this *cure* the disease; you merely *suspend it*. To effect a cure, you must give a larger quantity, in divided doses, in the twenty-four hours, and continue it for some time. I could cure ague very well with two or three grains of quinine, when it first came into use; but this does not occur now; therefore I believe that this medicine is exceedingly adulterated. I continually give now from twenty to thirty grains, before I can cure the disease. Some practitioners may cure ague with a few grains; and others may give a very large quantity;—there is no general rule to be laid down in this respect. I had, in 1829, a patient with a quartan ague; which did not yield to less than forty-five grains in the twenty-four hours. I thought this a great quantity; but in the next October, I found another patient in my wards, taking (under the direction of Dr. Roots) a scruple every eight hours, together with ten minims of liq. arsenicalis. This man had a quartan ague, and he was (notwithstanding this active treatment) no better. I therefore gave the medicine every six hours, instead of eight; and he was cured directly. This is the largest quantity I ever administered. I should advise you to give a large dose, such as twelve or fifteen grains in some cases, but in others eight or ten,—immediately after the paroxysm, to suspend the complaint at once; and then exhibit a small quantity at intervals, during the twenty-four hours, for the

purpose of curing the affection. It is material that you should stop the disease at once; because every paroxysm shatters the powers, and causes great suffering; but you will not always be able to stop the disease permanently, unless you give a larger quantity in the twenty-four hours, and continue it for some time. I give ten or twelve grains as a medium dose directly after a paroxysm, and five grains every six hours or eight hours afterwards, whether the disease returns or not, and you should continue the medicine for some time after the disease appears cured; for if you discontinue it directly, the complaint in all probability may return. It is the same with syphilis; for if you discontinue mercury as soon as the sore is healed, or the pain has ceased, the symptoms may return. You may administer this remedy with perfect safety, even during the paroxysm, when the pyrexia is present, and though there should be even local inflammation; but it is a waste to give it during a paroxysm; for the system is then in a deranged state. I have often had to administer it, although there was local inflammation, in order to cure both diseases; and while I was curing the local affection, by venesection and other measures, I stopped the ague with quinine; and I never witnessed injury arising from this treatment. When I first used this remedy, I had a patient with ague, who shivered every other day; and then he had intense heat and sweating; but during the intermission he was always hot, with a very quick pulse; and he was continually thirsty. In short, he had continued fever, as well as a tertian ague; or, as some would say, he had remittent fever. I gave him the medicine at regular hours, day and night; and it cured him. No inconvenience arose, notwithstanding the great feverishness. I have frequently seen quinine cure ague; after bark (given in as large a quantity as could be borne) as well as arsenic, had failed. I have known quinine stop vomiting, with great irritability of stomach. I have seen it put a stop to the irritability, as well as to the ague. Now and then it disagrees with the stomach; and produces vomiting and gastrodynia, just as bark will do; and, more frequently still, it will purge. If you find the stomach deranged, whether it be thrown into spasmodic pain, or vomiting is caused, you may administer aromatics, or opium, or (what is better by far) prussic acid. Should there be mere pain, an effervescing draught will be of no use; although it might be of utility if there was vomiting and nausea. In one respect it is best given in a fluid state; and there should be a slight addition of sulphuric acid, by means of which you make a super-sulphate. Sulphate of quinine is not very soluble by itself; you therefore add a drop of sulphuric acid, for every grain of the sulphate; and thus you have a super-sulphate, which is sufficiently soluble. I think it is more efficacious when administered in this form; but on account of its taste, and for the comfort of the patient, we frequently give it in a solid form. If you give it in the form of a pill, its bitterness is not tasted. Some say it has failed sometimes; and that bark has then cured the disease;—just as, in many cases, I have seen it successful when bark had failed. I think that when this has occurred it has been from its disagreeing with the stomach; so that a sufficient

quantity could not be taken. I have known cases in which the stomach became so irritated, from the intensity of the medicine, that the patient rejected it, and could not take it in sufficient quantity; while bark, being far less intense, could be borne; and therefore was exhibited in such quantities as to cure the affection. In the case of the lady who caught an intermittent by walking on the ramparts of the Tower, a very small dose of sulphate of quinine caused most intense pain at the stomach; and she could not continue the medicine. Bark was given, and cured the complaint. If she had taken tincture of opium, or prussic acid, in proper quantities, it might then have been borne. I do not know that it would; but I think it probable. *ANDRAL* mentions, that where quinine had failed, bark has succeeded subsequently in curing the disease. I should think that such a circumstance as this could only arise from the medicine irritating the stomach; so that it could not be taken in sufficient quantity; because it has all the virtue of the bark, with far greater power; a power which is one of the most extraordinary facts in medicine. The bark of the willow, and the alcaloid principle of willow, bark, malacina, and swietenia, and all the astringents of the vegetable kingdom, and more particularly a combination of two, such as columbo and galls, will cure ague. Such a combination is found to be more powerful, than either taken separately; and those which contain both a natural bitter and an astringent, are those which answer the best. Some assert that they have cured with these, when Peruvian bark has failed, and other combinations of bitters and astringents have done the same. You can cure ague with piperine. Next to the sulphate of quinine comes arsenic. The solution of arsenite of potassa, is that which is most commonly employed,—in doses of from two to ten or twelve drops or more, two or three times a day. I never begin with more than two or three drops, three times a day,—gradually increasing it. You will find it best, when you are giving an acrid matter,—such as iodine, the oxy muriate of mercury, or antimony (not in order to nauseate, but merely to sweat), to give it after food has been taken; for anything acrid, coming in contact with the mucous membrane of the stomach, is more likely to irritate it, than if food had been first taken, so as to cause it to be applied partially and gradually to the stomach. If Peruvian bark, or sulphate of quinine, should irritate the stomach, give it after meals; but never give arsenic before breakfast; for persons will be nauseated, and frequently made to vomit, by taking it on an empty stomach. Whenever it produces nausea or vomiting, a little tincture of opium is necessary. It is well to combine a little tincture of opium with every dose of liquor arsenicalis. The ill effects of arsenic, are symptoms of gastritis. The slightest symptom is nausea; next, vomiting; then pain of the stomach, tenderness on pressure, and heat ascending up to the throat. Arsenic has a tendency to excite gastritis, even when not taken into the stomach. I knew a case of a person being seized with gastritis, and thrown into the greatest danger, merely from arsenic being applied to a sore leg. Arsenic will first irritate the stomach; and the irritation soon arrives to the pitch of inflamma-

tion. It causes soreness and redness of the tarsi; redness and heat of the fingers; soreness of the throat; and œdema of some part of the body. Very often, when patients have been taking arsenic, I have seen their faces swell;—occasionally the lower extremities;—sometimes one part, and sometimes another; but more frequently the face. Frequently there is heat of the system. When this local inflammation of the stomach, throat, or face occurs, the whole body will become more or less excited; so that you have general pyrexia. Should this be the case, it is instantly necessary to discontinue the medicine altogether; and then you will perceive the symptoms decline. You will find it expedient to apply leeches freely at the pit of the stomach; or to bleed at the time, while you are administering arsenic, you look carefully at the patient's countenance, and inquire about his throat, and also respecting the state of his stomach,—whether there be pain, nausea, tenderness, heat, or vomiting,—I believe no injury can arise. I have seen ague cured, the first day arsenic had been given, although the disease had continued some length of time; but frequently a longer time is required for it to be successful. It has been made a nostrum,—just the same as bark. What is termed “Tasteless Ague Drop,” is a preparation of arsenic. The largest dose required is, I believe, from twelve to fifteen drops, (I never gave more) three times a day, or more frequently if necessary. Some say that when liq. arsenicalis has failed, pure arsenic has proved efficacious;—that is, what is termed *arsenic* by commercial men has succeeded, when its combination with potassa has failed. It is said that about the sixteenth part of a grain may be given, three or four times a day; that the eighth of a grain can seldom be endured; but that the sixteenth of a grain succeeds very well. I never exhibited it in this way; but so the fact is stated by Dr. MACULLOCH. Sulphate of zinc, oxide of zinc, sulphate of copper, and alum, will cure ague. Muriate of ammonia is said to have a power over this disease; and it is thought by many, at least in other countries, that it adds to the power of bark. Carbonate of potass is said to have some virtue. A combination of some of these things, is thought to be best; but no doubt sulphate of zinc and sulphate of copper will often cure the affection.

A full dose of sulphate of quinine or of bark, you have seen to be more efficacious just before the paroxysm, than at any other period of the intermission, except immediately after it is over. So may other remedies have been used just before the commencement of a paroxysm. A large dose of opium, has occasionally prevented it from coming on violently. Sudorifics and emetics have been employed for the same purpose. Many a child has been frightened out of his ague by the promise of a good thrashing if his ague came on; and there can be no doubt but this has cured the ague. Sometimes exciting disgust, by insisting that a person should swallow spiders, or cob-webs, has prevented the paroxysms. It is said that some persons imagine, that the latter really possess a power in preventing disease. I have no experience of the virtues of spiders and cob-webs; but you will find in Dr. CHAPMAN's work on *Materia Medica*, very strong evidence of

the soothing effects of cob-web. He states that it will procure sleep, and tranquilize the system, when all other things have failed. I am aware that persons assert that it has a kind of sedative quality, and there is no reason to doubt it; but in the cure of ague, it has only been mentioned in order to produce disgust; and it has succeeded in curing the ague, when mentioned immediately before the paroxysm.

Quinine or arsenic are also good, in other complaints of an intermittent, though not aguish character. In intermittent rheumatism and neuralgia, they are among the best remedies. It is singular, but even in intermittent vomiting arsenic has been known to effect a cure. Dr. ADAMS confirms this fact, in a volume of the Transactions of the London Medical Society. Whenever complaints assume an intermittent form, whether they be aguish or not, you will find that sulphate of quinine and arsenic are among the best medicines; and if either of these failed separately, I should not hesitate to give them together. I have failed with arsenic, but not with quinine. Whenever a case was obstinate, I increased the dose to the largest quantity the patient could endure. It was formerly thought very wrong to stop an ague, until the patient had gone through a certain preparation. I have surprised many persons who, when in other countries, used to see some preparation employed before the remedies for ague were given,—by stopping the ague immediately. I never saw injury arise from it; though if there be any local affection of the head, chest, or abdomen, you must be cautious, and attend to that at the same time. Should there be any congestion of the head, lungs, or abdomen, it may be necessary to bleed, purge, and use all the other remedies for this state; for if you do not, it is possible that the mere stopping the ague at once may be useless. When you have done every thing indicated by the local affection, there will be no danger in stopping ague. I never lost a patient by employing sulphate of quinine, when local inflammation was present. Arsenic may be very improper, when the inflammation which is present affects the stomach; and in the case of gastritis, probably neither arsenic or quinine can be borne; and you do not remedy the morbid condition, till you adopt local or general bleeding. I have seen local disease removed the more easily after stopping ague; for every paroxysm of course disturbs the circulation, renders it more irregular, and is likely to throw a greater load of blood upon those organs which are in a state of congestion. At any rate, ague will make bad worse. SYDENHAM says,—cure the ague first, and then you will easily remove the dropsy, which otherwise might be impossible. I never saw any chronic complaints ensue on stopping ague. I believe they do not arise from the ague itself, but are, like the ague, the result of malaria. I have seen many cases of dropsy removed by giving sulphate of quinine, without any other remedy conjoined with it. Sometimes you will find that ague will not give way, until you have removed the local mischief. Some say that ague will not yield, without resorting to local bleeding; and others have said that bark would not cure, until they made the patient's mouth sore. I have never met with such a case. However, if this be true, such a

practice must be adopted ; but I should myself continue the quinine while exhibiting the mercury, or using local measures. The great point, in the prevention of this disease, is to drain the country, and remove all dead vegetable matter as much as possible. If a part cannot be drained, occasional inundations may be necessary ; so that more water may be thrown on it, than is compatible with vegetable decomposition. The best method of preventing *individuals* from imbibing the affection, is to live on good food, with a certain portion of wine or beer ; and never to expose themselves to the influence of malaria, with empty stomachs. When malaria is excessive in quantity, spirits may be taken. Smoking also is good in damp districts. When persons are residing in a house where malaria prevails around, they should repose at the top of the dwelling ; and restrain themselves from leaving home at night, or at early dawn. A gauze veil enveloping the head, has been recommended, if persons are much exposed to malaria ; and it may be extremely beneficial to take sulphate of quinine also, as a preventive of the disease.

LECTURE XXVI.

CONTINUED FEVER.

THE general symptoms of continued fever, are the same as those constitutional symptoms which usually attend intense local inflammation. You will have quickness of pulse, increased heat, diminution of the secretions, and (from the latter circumstance) thirst, dryness of the skin, scanty and high coloured urine, and costiveness, with restlessness and watchfulness ; though at first, (as in the commencement of inflammation, and of intermittent fever), there are the opposite symptoms of chilliness, amounting even to rigors, with paleness, and smallness of the pulse ; but these last only for a time. ANDREAL states, that the chilliness rarely occurs on the first two or three days ; but I have been attentive to this, and have known persons, at the very commencement of continued fever, in London, frequently complain of chilliness, and those symptoms, which are analogous to the first stage of intermittent fever. Should these symptoms take place, they continue but for a short time, and soon give way to symptoms of excitement, which lasts throughout the disease ; though perhaps they are, after a certain period, united with symptoms of great debility, as we frequently perceive in the case of inflammation. In continued fever, the general symptoms vary, from those which characterize active inflammation, down to those which attend atonic or passive inflammation, or mortification ; so that you have symptoms of activity, and all the intermediate grades and degrees, down to excessive prostration of strength, and even a disposition to putrescency in the fluids. In an attack of fever, there is, from the commencement, more affection of the head, than when constitutional symptoms occur in mere inflammation. There is generally more or less confusion, with giddiness and drowsiness, or probably

even stupor or watchfulness. From the first, there is pain of the loins, with a complete loss of appetite, and general debility. The countenance is usually expressive of heaviness, anxiety, and uneasiness; sometimes, in these circumstances, the patient is pale in the face; but sometimes the face is flushed, and the eyes appear red. Frequently, there is great heat in the head; the vessels feel to the person to throb, and you will yourself feel them do so. There is then usually pain in the forehead; the tongue is generally tremulous, whether it be dry, or of whatever colour it may be. The characteristic of the commencement of this disease, is an extreme feeling of weakness, and aching of the loins; and an appearance of anxiety in the countenance. When these symptoms occur quickly and acutely, they exhibit the existence of continued fever, more particularly if there be the morbid appearance of the tongue, heat, quick pulse, and thirst, out of all proportion to any signs of local inflammation that may exist. The patient has then fever,—idiopathic fever,—fever, as distinguished from mere pyrexia. Local inflammation often evidently co-exists at the same time; but whether there is always local inflammation present or not, is a doubtful question. These symptoms, however, occur without any evidence of local inflammation; and are continually out of proportion to any we may observe; and it is this circumstance which induces us to believe the patient is labouring under *fever*. The heat is sometimes intense in these particular symptoms; the temperature of the body will occasionally rise to 104, 108, or 110; and sometimes it is of that peculiar character, which some writers term “mordant,” a pungent, biting heat. GALEN, Sir JOHN PRINGLE, and Sir GILBERT BLANE, mention mordant heat. The first of these writers, when treating of autumnal remittent fever, states that the great mark of it is, the mordacity and acrimony of the heat, which erodes the touch, just as smoke does the nose and eyes. This peculiarity of heat, is not felt the moment the hand is applied; but is perceived, on continuing the hand on the patient for a certain time. Sir GILBERT BLANE states, that in a ship-fever, there is a peculiar heat of the skin;—a glow of heat, felt in the palm of the hand of the medical attendant, when grasping the wrist of the patient, and it continues some hours, if the hand is not washed; but that he never saw this in the sporadic fevers of England, though he had been informed of its occurrence. ANDRAL states that, in the continued fevers of Paris, the heat of the skin was in one case very high, acrid, and mordant;—leaving a sense of heat, for some time, on the hand of the practitioner,—a sensation nearly allied to pain. Sometimes in fever, the heat is not increased; but should it be so, it is only partially, and varies in degree, at different times. Sometimes the temperature is below what it ought to be; and in the last stage, you have absolute coldness. The pulse may be full or hard, soft, small or weak, or easily extinguished. Like the temperature, it may be of all degrees; for, as the former may be from 110, down to far below the natural standard; so the pulse may be quick, full, hard and strong, or it may be so feeble as to be nearly extinguished,—or what is termed a fluttering or vermicular pulse;—according to the tonic

or atonic character, and the stage of the disease. If there be signs of general debility, while the pulse is strong, we should examine the state of the circulation at the heart; for, occasionally, there may be extreme debility in fever, with rather a strong pulse. The heart may be affected by disease, which you may not be aware of, from not having previously seen the patient. It may be greatly thickened; and although it may be acting less forcibly than it did before the attack of fever, yet it may act from its thickness, so as to produce a full pulse, which might induce you to employ active treatment. The pulse may be at 200; which, in a former lecture, I said you could not count, except at the heart. The usual beating of the pulse is, from 90 to 160;—sometimes it is not quick; for (like the heat) it is now and then not increased, but is slower than it should be. This occurs principally when the head is greatly oppressed; and it occurs therefore sporadically from the state of the head, or from some peculiarity in the person's constitution. It has, however, occurred epidemically; in which one of its characteristics was slowness of the pulse. DE HAEN speaks of a sporadic case of very severe fever, in which the pulse was only 46. SARCONI mentions one, at Naples, in which it was scarcely 40, in some patients. ANDRAL speaks of a case of fever which proved fatal, in which the pulse at first was intermittent; but as the symptoms became more intense, the pulse became less and less irregular, until it was perfectly uniform. RASORI speaks of a case, where the pulse was regular, until the fever terminated. MONRO and SHENKIUS speak of similar cases. Dr. HEBERDEN speaks of a person, whose pulse was intermittent, except during illness. He also knew a woman with an intermittent pulse, during the whole of her life; and she died of cancer in the womb; but in her circulating system, no one could discover anything unhealthy. The skin, during an attack of fever, is dry; but should a favourable change occur, it becomes more soft; and for the most part there is general moisture; but there are sometimes partial sweats, which are by no means favourable; and as death approaches, they are cold and clammy. Sometimes they are offensive, if there be intense debility. You will frequently perceive spots,—discolourations of various sizes. If they are very small, they are termed "petechiæ;" if larger, they are called "vibices;" and should they be much larger, they are termed "ecchymoses." They are of various shades, from a tolerably bright redness, down to a purple hue. They occur chiefly in the last stage of the disease, if there is extreme debility; but occasionally they occur where there is no debility. Continued fever, at particular periods, is characterized by these spots. I have seen a great number of instances of this description. The tongue is usually dry; and it may be white or yellow and loaded. It may be merely of a whitish brown, or quite brown; it may even be black. It is brown down the middle sometimes, with a broad white band on each side;—the edges perhaps being red,—sometimes of a reddish brown; and occasionally it is red, glazed, smooth, and dry. Sometimes it is cracked also. You will very often see more or less white or brown on the back, with redness of the tip, or the edges. Sometimes it is very

pale. If the tongue be of a reddish brown, or quite brown, or extremely black, you will usually see collections about the teeth and lips, which are denominated "sordes;" being, in all probability, the consequence of vitiated secretion; and occasionally they are in part the result of a little effusion of blood, which coagulates; and which unites with the secretion, and this contributes to their formation. The tongue is usually tremulous, and so are the extremities; consequently, when the patient attempts to move, his hands or his legs tremble; but even if they should not, you may observe the tongue affected by tremor. This organ being dry, and perhaps the fauces likewise, the patient becomes thirsty. The breath is often much more offensive than the perspiration. The urine is scanty, and high coloured; possessing an excess of the lithates and the purpurates,—chiefly the purpurate of ammonia, but likewise the purpurate of soda, together with the yellow colouring matter which exists naturally in the urine. When the fever declines, the lithates become superlithates, and are precipitated; so that you have a red sediment. The urine has a strong animal smell, and sometimes it has a strong ammoniacal smell; and as soon as it is discharged, it rushes into a certain degree of putrefaction. It is occasionally very dark-coloured, and has now and then a bloody appearance. The appetite is, for the most part lost; but as there are peculiar instances, from time to time, with respect to the pulse,—such as its being regular in fever, and intermittent in health,—so it is with respect to the appetite. I have read of cases in which the appetite has been far from extinct; and sometimes in fever it has increased. Dr. SATTERLY, in the fifth volume of the Transactions of the Royal College of Physicians, speaks of a boy who had typhus-fever, attended by marked inflammation of the head; and the exacerbations were always accompanied by a voracious appetite; so that in the midst of the fever, he would devour *four* meals in the course of the day;—meals sufficient for a stout hale labourer; and he would likewise eat pounds of dry biscuit, and a quantity of fruit. He always denied he had taken any thing, even after he had eaten a meal; for the more he devoured, the more he desired; and if he was not fed the moment he craved it, he would suck the bed clothes, and bite his fingers. This boy discharged several copious stools a day, and perfectly recovered. As the fever declines, the appetite usually returns; and at first the appetite is voracious. The persons declare there is nothing the matter with them; but they are very hungry. The stomach, from the commencement of the disease, is affected with nausea,—and in many cases vomiting; but occasionally the vomiting does not take place from the commencement;—does not occur until the disease has existed some length of time. The stuff vomited may be mere mucus or bile, or it may be like coffee-grounds; and now and then there is a considerable quantity. There is more or less costiveness in this disease; but very frequently there is diarrhœa; which begins sometimes with the affection, and at other times not until it has existed for a certain time. The character of the stools may be very watery;—may be mucous, or (as the working people say) slimy;—and the colour

yellow, greenish, or white. They may be offensive, and perhaps have a bloody appearance. The functions of the brain are always affected. It is very common to find pain, vertigo, tinnitus aurium. Sometimes there are convulsions, dullness, stupor, and general depression of spirits, delirium, and terrific dreams at night, with watchfulness. Some state that there is more oxygen consumed in the hot stage of fever (as also during digestion and exercise) than in health; and that there is more carbonic acid formed; whereas in the cold stage, as indeed after bleeding and in dyspnœa, less oxygen is consumed, and carbonic acid formed. The disease as I have described it, may have all the symptoms of mere excitement, with no remarkable debility. Generally there is more or less debility; but sometimes there may be chiefly excitement, with only that debility which is the consequence of fever. The fever may be subdued; the morbid changes in the secretions and functions may decline; and nothing remain but weakness and a certain degree of emaciation; and from these recovery may take place speedily. Emaciation is proportionably greater after fever, than after any disease of an acute character. But this may not be the case; the signs of debility may appear; the breath may become extremely fetid; as also the perspiration, and all discharges, whether from the stomach, intestines, or urinary bladder. The vomited matter may be like coffee-grounds, and urine bloody; and so may the feces. Blood may be seen in the mouth, or it may be poured forth from the skin; there may be blackness of the tongue, and a large quantity of sordes on the teeth, lips, and every part of the mouth. The fluids may putrefy, as soon as discharged; and the body, immediately after death, will become decomposed. We may not suppose putrefaction of living parts takes place, nor the secretions at the moment of their formation; but they are often as near it, as is compatible with existence. The secretions will putrefy, the instant they are poured forth from the body; and the body, as soon as life is extinct, rushes into putrefaction. The discharges are often so offensive, as not to be borne in the house. Now in these circumstances, the pulse is very rapid and very weak; there is excessive prostration of strength, and a death-like faintness is complained of. The countenance appears ghastly,—you have “*facies hippocratica*,” the intellectual faculties are disturbed; a troublesome hiccup comes on, with catching of the fingers, which is termed “*subsultus tendium*.” Perhaps convulsions supervene;—at least you have cold clammy sweats, and an involuntary discharge of urine and feces. Yet the debility and putrescence may decline, and recovery may take place, from the high degree of these symptoms.

Should the symptoms of fever be purely inflammatory, or those of excitement, with good strength at the commencement, and they do not degenerate subsequently into debility, the affection is termed “*synocha*.” Should they degenerate into *great* debility, the disease is termed “*synochus*.” But if from the commencement of the attack, symptoms of debility present themselves, then the affection is denominated “*typhus*.” These terms do very well to distinguish

fevers in different persons ; yet they are of an arbitrary character, and the etymology of the two first is the same. The disease we denominate *typhus*, is called by authors “hospital fever,”—“ship-fever,”—“goal fever,”—“putrid fever,”—“adynamic fever;” and should the symptoms be very intense, it is termed “*typhus gravior* ;” but should they be mild, although the affection prove fatal, it is then denominated “*typhus mitior* ;”—*typhus* being divided into two varieties. In continued fever there is every variety. There is the highest degree of excitement, and the highest degree of strength, down to the most absolute prostration of strength ; and from an absence of putrescence, to the highest degree of it. The head, chest, and abdomen are most affected, by this disease ; and the relative disturbance in these is various. The head and the abdomen suffer most, except where there is a particular epidemic character, or a predisposition in the person to, or a local cause of excitement in the chest. It is in hot climates, and in hot weather, that the abdomen is most affected. The local disturbance when extreme, is generally of an inflammatory nature ; or, at any rate, it is so at the commencement. But as there are all degrees of general affection, from tonic to atonic, so the local affection may consist of all degrees of violence, and vary from active tonic inflammation, down to mere irritation, or extreme loss of power. The local affection in the head, when great, may cause drowsiness, convulsions, vertigo, watchfulness, and *tinnitus aurium* ; but it may be more intense than this ; so that you will have violent head ache, and violent throbbing, which you will perceive by looking at the temples. You will have intolerance of light, and violent delirium, which may be constant, and of such a nature as to require corporeal restraint. The patient raves ; he is ignorant of persons or things, which were previously familiar to him ; and again he is for a moment rational, and even sensible. He will pick the bed clothes ; and tremor and delirium of this description are denominated “*delirium ferox*.” Sometimes the delirium is not of a ferocious character ; but the patient mutters, and there are slighter symptoms of derangement of the intellectual faculties ; and it is then termed “*delirium mite*.” When there is great debility, sometimes there are no symptoms of vascular excitement in the head ;—no head ache, no intolerance of light, no redness of the eyes, or throbbing of the temples ; but merely muttering delirium. Occasionally there is great stupor, and a comatose state, with or without an inflammatory disposition of the head. You almost always have anorexia, vomiting, purging, or costiveness ; and these symptoms are occasionally extreme. There may be copious intense vomiting of every thing taken, and fluids of every description ; and there may be violent diarrhoea, of all kinds and characters. The abdomen may be extremely tender to the touch, and even painful on slight pressure ;—distended and painful at the epigastrium, or in the hepatic region. There may be a sense of burning there ; and it may be felt also up to the throat, and be attended by great thirst. When the symptoms run high, they are extreme ;—vomiting, purging, tenderness, and probably violent pain,

even when you do not employ compression. The condition of the tongue has been supposed to correspond with the state of the alimentary canal. It is certainly often red,—perhaps generally, either throughout the edges or at the tip, when the internal coat of the stomach is inflamed; but the condition of the two organs is not constantly the same. The tongue may be red in fever, and in other diseases, without any corresponding state of the stomach;—at least without any evidence of it. Blackness of the tongue is rather indicative of the general debility of fever, than of a gastric affection. Thirst may be commensurate with the gastric affection; but it may arise simply from the intensity of fever, which dries the fauces. Ulceration and inflammation of the stomach or intestines have been found, where the tongue had not been red during life; and it is said that neither they nor any abdominal inflammation could be seen sometimes, where there had been great pain of the abdomen felt on pressure. The purging may be violent, without any inflammation of the mucous membrane; which may be found healthy in consistence, and even pale; just as we have profuse perspiration under various circumstances, without any inflammation of the skin.

It is not a necessary circumstance that the tongue should indicate the condition of the stomach, or of the intestines. There is a certain correspondence between them; but it is by no means invariable; nor is it a necessary consequence that when we perceive great irritation of the stomach, and of the intestines, that there should be inflammation existing; for often after such circumstances, examinations have not proved the existence of inflammation. The *chest* is more or less affected; the breathing is more or less quickened; and there is little cough; and generally if you employ the ear, or the stethoscope, you will find in fever some degree of sonorous, or sibilous, or mucous rattle in the lungs. You will generally find the mucous membrane of the bronchia more or less affected in fever. Occasionally, however, the respiration is very much affected; it becomes very rapid; there is violent cough, pain in the side, or at the front of the chest, great rattle, copious expectoration, and all the decided symptoms of bronchitic, pleuritic, or peripneumonic affection; so that at last there is blueness of the lips and cheeks, from congestion of the lungs. I believe there is, during the disease, more congestion of the lungs than actual inflammation. The affection of the chest, though it generally exists, is far less often of an inflammatory nature than affections of the head or abdomen,—the abdomen more than the head. The blood may be found buffed, and perhaps cupped; but it is often natural. Occasionally the coagulum is very loose, corresponding with the debility; and frequently it putrefies. It has been discovered that, in the typhoid stage of exhaustion, the chemical characters of the blood are exceedingly depraved;—that it abounds more and more in serum; and less in its other constituents. As debility increases, the blood at last resembles mere fibrin and serum; little or no chyle is formed; and it is deficient in carbonic acid, and saline particles. Dr. CLANNY pointed attention to this circumstance. Dr. STEVENS has made similar observations in a distant land; and which are now

published to the profession. Thus we have the testimony of two physicians, who have observed this state of the blood in fever; and Dr. STEVENS was not aware of what Dr. CLANNY had done. Occasionally the *eyes, throat*, bladder or skin, will become inflamed. You will have sometimes an eruption of minute vesicles of the size of millet-seeds; and sometimes you will have large patches of inflammation, and now and then irregular pimples,—*papule*. Sometimes you have a great discharge of blood from the intestines, and urinary passages; probably without any corresponding severity of the general symptoms. Occasionally you will have inflammation of the parotid glands, ending in abscesses in different parts; and sometimes a great mass of boils will arise. The debility, in this disease, is intense; so that in consequence of a patient lying on his back so long, the hips and the loins are greatly disposed to mortify. Such is the debility, that the effect of pressure is not resisted, as it is in health; so that in this disease, the lying on the back causes such a pressure as to impede the circulation, and produce mortification. When the fever has terminated, the intellectual faculties will remain dull or imbecile for a length of time,—sometimes for months. There is occasionally great depression of spirits, which the person cannot conquer; although in all other respects he is healthy. Now and then, after an attack of fever, a hand or foot, or both the hands or feet, or a whole extremity, will remain for a longer or shorter time bent, and little influenced by volition; so that a person may be crippled for the remainder of his existence. I have witnessed this; and it has ceased after a certain period; and I have seen other cases in which it has, and still does, continue. This disease, whether active or inflammatory, or one of great debility, or even putrescency, may last from one or a few days to a number of weeks; but rarely beyond eight or ten. Sometimes it will terminate with a discharge of blood from the nose or intestines, or other parts; or with purging or sweating. Dr. GREGORY has known fever end in a great discharge of healthy urine. ANDRAL saw fever end with profuse expectoration; and once with an alternation of sweating and expectoration. You will find that authors mention, as happy terminations,—as critical circumstances, suppuration after the disease; a general crop of petechiæ; and even the emaciation which follows. These discharges, when they take place, are termed “critical;” and the amendment in the condition of the patient is denominated “a crisis.” Ancient writers supposed that a crisis occurred on certain days; and they called those days critical. During the first eleven days, these critical days were of a tertian character; so that the third, fifth, seventh, ninth, and eleventh, were those on which this disease was disposed to terminate well. After the eleventh day the type was supposed to be quartan; so that the fourteenth, the seventeenth, and the twentieth, were then supposed to be critical. If an alteration occurred on these days, it was thought most favourable. It might happen on other days; but then it was said not to be so favourable. Among the ancient writers, who held these opinions, we have the testimony of HIPPOCRATES and GALEN; and amongst the modern writers we have Dr. FORDYCE, Dr. STOKER, and Dr. PERCIVAL. But others object to these critical days; and allege that it

is mere hypothesis, founded on the Pythagorean doctrine of numbers; or that it was derived from the types of intermittent fever, which was supposed by ancient writers to be identical with continued fever. HIPPOCRATES, according to DE HAEN, mentions one hundred and sixty-three terminations of fever; of which one hundred and seven took place on the critical days;—that is, two-thirds; while only eighteen (or one-ninth) took place on those days which are termed non-critical. The types here mentioned are those of fourteen or twenty-one days. Probably those ignorant of medicine only retain notions which were held formerly by physicians; who imbibed them from ancient authors; and thus they have been handed down to the present day, and prevail among those who have not studied the practice of medicine.

Some people say they do observe these things; but I cannot assert that I have ever noticed that the disease terminated on one day more than another. It is said that the reason why we, of the present day, do not perceive those things which ancient authors did, is in consequence of the activity of our practice, when contrasted with their method of treatment; for we do not wait, in order to permit nature to rid herself of diseases; but endeavour to counteract a morbid process; and thus we are enabled to cure more cases of fever than the ancients did. In order to exhibit the inefficiency of the practice of ancient times, I will mention that M. BROUSSAIS states that HIPPOCRATES, in the first and third sections of his work on epidemics, furnishes an account of thirty cases of acute disease. Sixteen of the patients died; and the remaining fourteen suffered greatly afterwards. This must have been bad practice, unless under particular circumstances; such as the eastern epidemic, termed cholera morbus. HIPPOCRATES is also quoted by Sir GILBERT BLANE, for forty-two cases of acute disease; thirty-seven of which were cases of continued fever, without local affection; and in five there was a local affection. Of these twenty-five died; that is *twenty-one* of the thirty-seven, and *four* out of the five. Now if nature had a desire to cure on certain days, here was a fine opportunity lost.

LECTURE XXVII.

CONTINUED FEVER.

THE general symptoms of fever may vary exactly as the constitutional symptoms of inflammation. You may have from those fevers of the most powerful excitement, with sufficient strength, down to those of extreme exhaustion; just as you may have inflammation of an active tonic kind, down to that species which occur when the disease is attended by gangrene, and complete prostration of strength. So it is with the local symptoms, which exist principally in the head, chest, and abdomen; for, these will vary from the symptoms of the most active tonic inflammation, down to the symptoms of mere irritation, without any great marks of inflammation; and they will vary in other cases, down to the most complete exhaustion of an individual

part,—down to gangrene. We may therefore, in fever have *general* symptoms of every degree, from the most active character, with strength, down to the most passive or atonic kind, with excessive debility, and putrescency; and the local symptoms will vary from those of the most active character, without much inflammation, down to the utter loss of vitality,—gangrene. After death, you will find that appearances vary exceedingly; and that they are principally situated in the head, chest, and abdomen; sometimes in one, sometimes in two, and now and then, in all of them. You will also perceive that the appearances vary, from those of active inflammation, down to those slight marks of inflammation, where the case has been rather one of irritation; and you will find them sometimes to be those not merely of ulceration, but of gangrene or excessive softening.

Morbid appearances are principally found in the head, chest, and abdomen, just as the local symptoms, during life, are chiefly situated in these organs. Sometimes you find degeneration of the structure of parts, without much inflammation; exactly as is the case independently of fever. You will have softening, and various other changes, without any marks of inflammation, at all proportionate to those changes. You will occasionally find in the brain more red points than usual; sometimes the arachnoid will be found injected, both as to its superficial portion, and the portion which lines the ventricles. You will often find the veins and sinews turgid; and frequently there is an excess of serous fluid on the brain, and in its cavities. Some will contend, on opening the brain, that it is healthy; and others will declare that there are more bloody points than there should be; and that the veins and sinews are too full, or that there is an excess of serous fluid. You ought therefore to be cautious; and be convinced that you are right, before you state that anything preternatural exists in the cavity of the head. In fever, it will constantly occur that there are rather more bloody points than usual, without the patient having exhibited particular symptoms of an affection of the head. These appearances will differ in various healthy individuals, exactly as they do in other parts of the body. You should discover appearances which are not at all doubtful, in order to say that there are decided inflammatory marks of the head. There is no doubt but you do see, in fever, more bloody points than natural in the brain. The vessels of the pia mater are really in a state of congestion; as are sometimes also the sinuses; and occasionally you will perceive there more fluid than there ought to be; which fluid is various in appearance, as in all other affections of the head. Occasionally it is clear; now and then it is turbid, with fragments of lymph floating in it. Sometimes there is even an effusion of blood, or this serum is bloody. Frequently, when there has been severe phrenitis, or strong marks of excitement of the head, you will not find anything. I have frequently examined persons who have died of affections of the head; and have found the appearances entirely disproportionate to the symptoms exhibited during life. ANDRAL states, that the morbid appearances in the head, are less than those found in the abdomen. I believe this to be true; for if the chest happen to be the part

much affected, (which is not very frequently the case) you have far more decided morbid appearances, than in the head; although many have asserted that the disease is situated in the head. Should the thorax exhibit marks of disease, you may find the lungs soft, and filled with a frothy, red fluid. Occasionally they will crepitate as they do in health; and sometimes they will be quite impervious to the air,—particularly if there have been much debility; and you may (but this is not common) find them in a state of gangrene. It is very uncommon to find the lungs in a state of red solidification, or what is strangely termed “hepatization;” which is improper; because although they may be as solid as liver, yet no part can be converted into that organ. It may have the common qualities of liver, as to colour and consistence; but to call it hepatization, is applying an improper meaning to this morbid state of the lungs. Sometimes, though rarely, you may find them solid and grey, in different parts; —spots of grey solidification, with an abundance of red frothy fluid in them. One of the most frequent appearances in the chest, is redness with thickening of the bronchial tubes; for a slight degree of bronchitis is very common in fever. If you listen, in most cases you will hear, more or less, a sonorous rattle, exhibiting a slight degree of bronchitis. Occasionally, the pleura is affected; an effusion is seen in it perhaps, with redness of the membrane, and perhaps adhesion. Sometimes even blood is observed. There is an analogy in these appearances to those observed in the head. The blood found in the heart, and large vessels, is generally fluid and very dark. You will not necessarily find the coats of the arteries inflamed; although some have said they are always so, in fever. The inner coats may sometimes be inflamed, like other parts; but you may examine many cases without perceiving this. In the abdomen, we find marks of inflammation of the peritoneum; or, at any rate, of the cellular membrane immediately underneath it; or we may find inflammation within the stomach or intestines. The latter are generally contracted, whether they be inflamed or not; but inflammation in the intestines is very common, as well as in the stomach; and is situated in the cellular membrane under the muscular coat, or in the mucous membrane itself; in which we have inflammation, and all kinds of appearances. *BONETUS* states, that an inspection of those who died of intermittent fever, shewed that the stomach and intestines were inflamed. *BARTHOLINI* mentions the same thing. *SYDENHAM* states, that the intestines are often ulcerated in continued fever. If you open the intestines, you will frequently discover every extensive redness, which will end suddenly, as inflammation of the skin does; and occasionally it is lost insensibly in the surrounding parts. Sometimes you will find the redness extending a foot or two in length, but generally it is found in patches; and this redness is now and then abortive; and has little red spots around it, which vary in hue, from bright red, to a brown, or even to a purple shade, according to the degree of congestion. The mucous coat is frequently thickened in continued fever; and it may be thickened to a great extent, or only in patches; and, now and then, it is softened, and the whole of the

coats of the intestines are in the same state. On the inner surface of the intestines,—the mucous membrane, there are often small red conical elevations,—pimples, like the fringes below the tongue; or small white conical projections, or centrally depressed. These last appearances are seen much more in the inferior two-fifths of the small intestines, than anywhere else. Indeed it is in this situation, that we find the principal morbid appearances. They are usually pointed in the colon. Sometimes these white conical elevations, are real pustules, or small follicles, containing real pus. The secretions of course are diseased; the mucus is of a thicker quality than usual; occasionally, almost as thick as fibrin; and now and then it is bloody. The mucous membrane will often peel off; because the cellular membrane, which attaches to it the next coat, becomes so brittle, that it no longer forms a medium of union. Nothing is more common than to find ecchymoses,—an effusion of blood into the cellular membrane, under the mucous coat. You will constantly find ulcerations in the lowest third of the ilium; and the nearer you come to the cæcum, the greater is the degree of ulceration. It is often seen in the midst of red patches; and the surface beyond these, is frequently very pale. It would appear that superficial inflammation had occurred locally, with much severity; and, in the centre, had proceeded to ulceration. You will observe these ulcers also frequently taking place in the small pimples, or pustules of the glands; so that you have two kinds, one superficial, causing an abrasion, like that which takes place in the mouth or throat, or on the organs of generation; and the other occurring in the glands. These are of all sizes and of all shapes. Occasionally, you will perceive a portion extensively ulcerated; and these ulcerations are sloughy; or, at any rate, you may detach a sloughy layer of something;—perhaps a diseased secretion; and beneath you find an ulcer. Surrounding the glandular ulceration, you will often perceive the mucous membrane more or less detached, and the ulcers extending to various depths. Occasionally, it is so deep, as to go through all the coats of the intestine, and perforate the peritoneum; and when this takes place, there is generally sudden peritonitis. Pain is felt at a particular spot; it darts from it in all directions; and death is the result. But nature will sometimes prevent this, by producing adhesions; or, perhaps the perforation is blocked up by a piece of omentum. The inflammation which is induced, is sometimes of a slow, chronic form. The patient recovers from the fever, but lingers under chronic peritonitis, which is now and then devoid of pain, but this is uncommon. Sometimes you will have an abscess in the substance of the intestines, in their cellular membrane, I think; which takes place as it does in any other cellular membrane. The peritoneal and the mucous coats being healthy, the matter is produced between them, and exists in the cellular coat. I do not believe that inflammation occurs in the muscular coat of the intestines; mucous, cellular and serous membranes, are far more frequently inflamed than muscles, for it is uncommon for them to be inflamed, and there is sufficient of the former in the intestines to become inflamed, without supposing that the seat of inflammation is

in the muscular coat. It would appear probable that these ulcerations may take place rapidly; for persons have exhibited them who have only been attacked with fever two days; but frequently they take place slowly; and they are more frequently perceived in persons who have died from fever, than of any other affection.

The larger intestines are not so often affected, as the stomach or small intestines; and of the latter it is in the portion which is situated nearest to the cæcum;—the lowest third of the ileum, or the lowest two-fifths. Some have declared that the head is always the seat of fever; and that its nature is inflammatory. Others have stated fever is seated in the abdomen; and that it is inflammation of the intestines. I admit you will find morbid appearances there; but you may examine many persons after death from fever, and find the intestines sound, or at any rate with no such marks as will explain the symptoms of fever. This I have seen many times, in cases where I could not discover any ulceration or inflammation of the intestines; and in which cases you would not have supposed that fever had existed, if you had not known it previously to death. Sometimes there might be a little more redness in some of the intestines; or if there were anything morbid, yet that was insufficient to account for the general symptoms of fever. During life, the symptoms often depend on local affection; but occasionally you will discover no disease existing in any particular part. I am much pleased that M. ANDREAL coincides with me in many of my opinions. He states that of thirty-eight cases of fever which he examined, eleven only presented marks of gastritis, enough to have influenced the symptoms during life. Thirty out of the thirty-eight, shewed some sort of intestinal affection; but only fourteen out of thirty-eight exhibited morbid affection of the intestines, which could explain any of the symptoms during life. He also says, the changes which are seen in the nervous system, are comparatively rare and slight. I do not believe that fever is to be explained by reference to morbid anatomy; though many of its symptoms and of the occurrences which take place, are to be thus explained. Should you have phrenitis or bronchitis, you will have the marks of phrenitis or of bronchitis; should you have diarrhoea, you will expect to find ulceration of the intestines; but often there are few or none of these symptoms; and after death there are no such marks as will explain the cause of fever, though there may be enough to explain the local symptoms that have taken place. In fever the head is but slightly affected after the lapse of a few days; and you will continually find that the abdomen is scarcely affected. In fever attended by intense exhaustion, I believe the muscles are generally soft and livid; and correspond with the state of the blood, which is more like lymph than any thing else. The liver and spleen are hardly ever affected. The bile is occasionally very dark and thick; but in other cases it is the reverse,—being pale and thin. It is sometimes acrid. The liver and spleen may shew marks of inflammation; or if they be not inflamed, you may perceive the results of inflammation in a little suppuration. They may be softened. All these things are extremely uncertain.

A correct diagnosis of fever is formed, in a great measure, by observing that the constitutional symptoms are disproportionate to any existing local affection. The constitutional symptoms in fever are of course influenced by the local affection, and frequently they are of a totally different nature. For instance, there is often no local sign of inflammation, or of any local disorganization; but there is excessive debility from the commencement, which is not perceived in mere inflammation; and the countenance, too, is peculiar, and expressive of anxiety and oppression. There is almost always, from the commencement, pain of the loins; and during nearly the whole of the disease, tremor of the tongue. These symptoms are entirely different from what we perceive in mere inflammation of the brain, or chest. Sometimes you may have a local inflammation of the liver, and of the stomach; but you will have also proportionate loss of strength;—perhaps with a feeble pulse, a putrescent condition of the body, and symptoms entirely dissimilar to those you observe to arise from local inflammation. The countenance, and the sense of debility, from the commencement, are characteristic. The prognosis must be taken from the intensity of the disease; but it is not necessary to give an unfavourable opinion, because the constitutional symptoms of excitement are violent; for mere *general* excitement is not dangerous, unless it is attended by extreme *local* excitement, and local *inflammation*: and if you cannot discover any great marks of inflammation in the head, chest, or abdomen, the mere general excitement however violent is not dangerous. But although you ought not to suspect danger from violent excitement, if there is not great local affection, yet symptoms of an opposite character are generally dangerous, in proportion to the intensity of the signs of debility; which in fever are great rapidity and weakness of the pulse. ANDRAL states, that he never knew a person recover from fever whose pulse exceeded 140; but I believe that it is well known that persons will recover after a pulse of 160, although such a pulse may be dangerous. Dr. HEBERDEN speaks of a pulse of 180 in fever; and the patient recovered. Involuntary discharges of the urine and feces, also, indicates great danger; for this state depends on intense debility, or a local affection of the head or abdomen. From the state of stupor which the patient is in, he is utterly unconscious of what is occurring; and he is too feeble to restrain the excretions. Should the patient lie on his back, there is more danger than when he lies on his side; for it requires a greater effort to maintain the latter posture. There is likewise far more danger should the patient sink in bed; for it indicates that very little strength remains. An individual can exercise the muscles of deglutition, sometime after he has been deprived of power over the trunk; and if the patient cannot swallow, it is a most dangerous symptom. Blackness of the teeth and tongue, is likewise more or less dangerous. Although we perceive patients recover, whose teeth have been covered with sordes, and whose tongue has been black, yet this condition is a bad sign. Abundant discharges are usually dangerous, unless the symptoms remit; and the danger increases in proportion to their depraved

nature. A discharge of blood, or its effusion under the skin, forming vibices, petechiæ, and ecchymoses, is dangerous; and the larger these spots, the greater the danger;—vibices being more dangerous than petechiæ, and ecchymoses than vibices. The presence of petechiæ is not dangerous of itself; for some epidemics are characterized by it; but should it be very considerable, and attended by other signs of exhaustion, then it is dangerous. Hiccup is also dangerous, because it generally comes on towards the fatal termination of fever; but occasionally fever may attack dyspeptic individuals, and you may have hiccup, not so much from fever, as from a disposition to it, caused by constant weakness of the stomach. Debility at first is a bad symptom; but the same degree of it would not be so, if the disease had lasted for a fortnight or three weeks; because if the disease be to last for a fortnight, and you have from the commencement the same debility which you find in other cases at the end of a fortnight, when the latter period arrives, the debility may be such as to extinguish life. Should a person have violent pleuritis, peripneumonia, enteritis, peritonitis, or any other local affection, of course the danger is increased and it often rests entirely upon the local affection. Age and constitution are important. Persons of bad habits, who have been badly fed, or addicted to drinking, or have suffered from want of necessary rest, are very liable to become victims. You should always consider the character of the epidemic; and if you know it is of a dangerous nature, you should always give an unfavourable prognosis, even at the commencement, before the dangerous symptoms have begun. We are occasionally obliged to give an unfavourable opinion, from the state of the patient's mind; for I have frequently seen persons die of fever, because the mind has been depressed and uneasy. Should a patient believe that he will not survive the disease, or if some great calamity afflicts him, then the practitioner has less chance of curing him, than if his spirits are tranquil. If you are aware of the state of the patient's mind, you should speak with great caution, even though things are going on favourably. You must also give a prognosis guided by the power which you possess of performing your duty. Occasionally you are prevented from doing those things which you desire, by the opinion of friends, or the unwillingness of your patient; and sometimes you are prevented by another practitioner. These things it is necessary for you to remember. In giving a favourable prognosis, the greatest caution is necessary. The decline of all symptoms, of course is a ground for a favourable prognosis; but when the symptoms are declining generally, you must ascertain whether all is well throughout the body; or whether there may not be some local circumstance existing, from which you may apprehend danger; for occasionally when the fever is declining, the loins slough, and the patient may expire from exhaustion. A return of strength is one of the best signs. Should a patient no longer sink in bed, but lie on his side, then your prognosis may be favourable. You may judge much from the face, and feelings of the patient. Some say that deafness is favourable;—at any rate it is not unfavourable. Patients, in cases

of fever, become extremely deaf; but they recover, just as they would if the deafness had not affected them. The return of all the feelings to a healthy state, must be a favourable circumstance in your prognosis. Dr. GREGORY, on visiting one of his patients who had fever, was informed by him that he was much better;—and wished to have his mistress; and some wag inserted in the prescription book,—“Let him have his mistress” (a laugh). Dr. GREGORY was of too amiable a temper to feel offended at any joke of that kind; and the worthy doctor used to mention it with great delight, year after year. The first predisposing cause of the disease, is mental depression; for many individuals are not affected with fever, although exposed to all the exciting causes of it, until their spirits are depressed. This I have known in many instances. It has been observed that persons have not become victims to the plague, until great mental suffering has been occasioned, by the loss of some relative or friend. DIEMBROCK mentions a case of this description. The person was not affected, until he saw a funeral pass him; when, on inquiry, he discovered that the victim was one of his dearest friends; and he sickened of the plague, and died. This circumstance occurs with respect to fever, and other affections. Intense mental suffering, or great anxiety relative to anticipated misfortune, corporeal depression, or over-exertion of the intellectual faculties, will have the same injurious effect. Too great an exertion of the muscular powers, excess in venery, and debilitating circumstances of all descriptions (whether of the mind or body), will lay the foundation of fever. A want of the necessary food, and a defect in the quality of it, are predisposing causes; for famine and fever are usually united; and hence, probably, we pray against *plague, pestilence, and famine*. Want of fresh air is also a predisposing cause of fever. The vigorous period of adult age, appears the most predisposed to the disease; for the aged and infants have fever less frequently than other people. Independently of these circumstances, there appears to be a peculiar susceptibility to it in some persons; for they will become victims in circumstances in which many other individuals are placed, without being attacked by the disease.

LECTURE XXVIII.

CONTINUED FEVER.

THE continuance of some of the predisposing causes of fever, may lead to their becoming the exciting causes; for it is probable that the continuance of debauchery may, without any additional exciting cause, increase the disposition to such an extent, that at last the disease itself commences. The cause of one kind of continued fever, is certainly exposure to cold, particularly when the body is over-heated or fatigued; for many cases of fever appear, without any other exciting cause than exposure to cold,—especially if it is

united with wet. There is generally allowed to be one peculiar cause of fever, and that is contagion; by which I believe we generally mean a peculiar matter generated in, or a depraved secretion of, the living system under disease; and capable of producing it in others, when there is no indisposition to the same, but more particularly if there be a predisposition. I have mentioned the terms either “a *peculiar matter*” or “a *depraved secretion*,” because in the greater number of instances of contagion, it is a depraved secretion. Very often it is pus,—pus frequently in small-pox,—pus in syphilis,—pus in glanders,—pus in a variety of diseases. In hydrophobia it is either mucus or saliva; and in other instances, it is apparently mucus. In cases of the skin, it sometimes appears sweat; but it may be something separated from the body, unconnected with its real natural secretions. It is possible that an emanation of some kind may take place from the surface of the body, or the lungs, and affect the air, independently of the aqueous fluid which is separated from organs. I do not know if this is the case; and to avoid all the objections of those who maintain it, I have said that it is either a peculiar matter, or a depraved secretion. And in saying “living system,” I wish to avoid the objections of those who might instance that contagion occurs from vegetables, as well as from animals; and of course it is the necessary attribute of contagion, that it should possess the power to produce the self-same disease in others. I do not mean to assert, that it can produce it in all others; because there are some who will not imbibe a particular contagion, but are able to produce it in others, who have no indisposition to the disease. I have said “another,” referring to the antecedent phrase, “living system;” because contagions which have affected one species, have in numerous instances affected others. There are diseases affecting brutes, which may be communicated to the human subject; consequently it is necessary to say—“produced in the living system, and capable of exciting the same disease in another living system,”—not merely of the same species; but another living system,—speaking generally. Diseases thus produced, may be either acute or chronic. What are denominated “the exanthemata,” are acute; such as scarlet fever, measles, small-pox, chicken-pox, cow-pock, hydrophobia, typhus (if it be a contagious affection,) and plague; but the itch, porrigo, elephantiasis, syphilis, the yaws, the sibbins, and the disease, termed *laan-der* (peculiar to Africa,) always become chronic, if not stopped; and they are not more active at the commencement, than subsequently. There are contagious diseases which you may consider both acute and chronic; for example, the hooping-cough (if it be contagious;) for it usually begins like an active disease, with the activity of most acute affections; and yet it may go on for a length of time; but scarlet-fever, small-pox, measles, chicken-pox, typhus, and hydrophobia, cannot be chronic; they are, in fact, always acute. Syphilis cannot be considered chronic, when it comes on; but it rarely possesses comparatively the activity of small-pox or measles; and it may continue for months. Diseases that are contagious, both acute and chronic, are occasionally febrile, though sometimes non-febrile;

and therefore it is proper to divide them into acute and chronic. Hydrophobia is not a febrile disease, although it is contagious, and of an acute nature. Some of these diseases may be imbibed by contact, either with the person, or something he has touched, or some palpable matter that has emanated from him ;—such as cow-pock, hydrophobia, elephantiasis, syphilis, yaws, siccins, laander, the glanders of horses, and perhaps the plague, and porrigio or scald head. Other diseases may be communicated by the atmosphere surrounding the patient. In this case there must be the contact of something invisible, which has proceeded from the patient, though not in a palpable form. Those diseases which may be communicated by contact, or something that he has touched, or something which has emanated from him, or from the surrounding atmosphere, are the chicken-pock, small-pox, scarlatina, and measles ;—the latter have certainly been inoculated, like small-pox. Perhaps it is from something in the atmosphere which is invisible, but which has proceeded from the patient, that we become affected by typhus, (if it be contagious), and chin-cough. Should an individual touch another who has these diseases, it is probable that this contact, and an impalpable emanation, as well as the touch, may communicate them to him. The term “contagious,” is applied to all these diseases ; and it is likewise employed to distinguish those which are induced entirely by contact, or something he has touched, or something palpable which has emanated from him ; but the term “infectious” is applied to those diseases which may be induced by being merely exposed to the air surrounding the patient. The term “contagious” is used in the same sense, as the term “horse ;” which latter word includes both mare and horse ; but it is often applied to the mare only ; and *infectious* diseases are, in like manner, constantly being denominated *contagious*. But the word “contagious” is likewise employed in a limited sense, —to signify those diseases which are communicated by actual contact, or by touching something, or by something touched by the patient, or something palpable which has emanated from him. We have diseases both infectious and contagious ; and when a disease may be communicated in both ways, it seems that it is communicable more quickly by contagion, than by infection. Should two individuals be exposed to an atmosphere infected with small-pox, and you inoculate one with the virus, the disease will appear much sooner in him than in the other. It is a fact that contagion, in a limited sense of the term, excites the disease sooner than infection, when the disease may be produced both ways ; so that when an individual is exposed to the infection of the disease, it is the practice to inoculate him as quickly as possible ; in order to bring on the disease in an artificial manner, before it can arise from infection. There are other diseases which are supposed to be only occasionally contagious ;—I employ the term *generically* ; Catarrh is considered to be sometimes infectious. Ophthalmia appears to be sometimes contagious ; but in a majority of instances, it is not. Erysipelas is not considered a contagious affection. Dr. WELLS, however, in an article published in the Transactions of the Society for the Improvement of Medical

and Chirurgical Knowledge, states that he has seen certain instances which he strongly suspected were cases of erysipelas, induced by contagion. Continued fever may be similar in its occurrence. It arises frequently without contagion; but in other cases, I am disposed to believe that it is contagious. There are some diseases which are only contagious for a certain period. There is no doubt that after a certain time, the discharge from the urethra, (call it what you please,—gonorrhœa or gleet,) is perfectly innocent; and that it cannot communicate disease; and in hooping-cough, children will hoop long after they can give the disease to others. Again, it is stated that some diseases are only partially contagious. For example, the matter discharged from the primary sores of syphilis. A primary bubo will give the disease; but it is asserted that the matter of secondary sores is not contagious. Whether this be correct or not, I do not know. Occasionally some diseases appear to be generated afresh;—to give rise to something capable of producing the disease in others. The itch will occur after continued fever, where it is impossible to trace it to other persons. Hydrophobia will spring up in this way; for dogs become affected, by this disease, without our being aware that it can be traced to any other animal; and where there is no probability of exposure to contagion. The same is the case in glanders, in horses. This is said likewise with respect to typhus; for an individual has become affected with it, from mere common exciting causes; and it has been ascertained that he has communicated it. However, I have never observed typhus fever contagious. Now, with respect to itch, hydrophobia, and typhus, (admitting the latter is contagious,) whether you choose to believe that they will ever occur *de novo* or not, they must have had their origin at some time or other; and it is not more surprising for them to occur *de novo* at the present time, than that they were originally produced; for there must have been a person or brute who first had measles, small pox, and scarlet fever; and who could not have derived them from another being. It is not quite certain that small-pox, chicken-pox, hooping-cough, scarlet-fever, and measles, do not take place without contagion; for we continually see children with these diseases, who have been shut up in the country, without indirectly or directly having intercourse with any persons who could have had them; or who had visited others labouring under the affection. There *may* be an error existing on this point, for there *may* have been communication; but certainly the absence of this, direct or indirect, occurs so frequently, that I do not think we have a right to say that they do not occur *de novo*. I give no opinion on the subject one way or the other.

We must all have seen cases of a second, and sometimes a third occurrence of cow-pock, chicken-pox, small-pox, measles, hooping-cough (by the latter I mean the real disease, not a spasmodic hoop), and scarlet fever; but the general rule is for them to occur but once; while the rest may take place more than once; and, indeed, some of them an indefinite number of times. Some persons contract gonorrhœa and syphilis many times,—as long as they expose themselves.

For it would not answer the moral end of these complaints were they, like small-pox and measles, to be had but once. With regard to hydrophobia, it is not known whether it may be had twice or not. So far as I am acquainted with the subject, both human beings and dogs have always died of the disease when seized with it, and therefore we cannot tell whether it may be had a second time.

Although you may place each of these diseases into one class or another of those I have been enumerating, yet it does not follow that a disease which is placed with another in one class, will be side by side with it in another class. These classes are all distinct—the characteristics have no relation to those of another; the diseases which meet in one class will not meet in another, and the affections which are of different classes in one respect will meet in another class with others. For example, hydrophobia is of the class of acute contagious diseases, together with small-pox—both are acute diseases; but small-pox is in the class of those which may be communicated either by the atmosphere or by contact, whereas hydrophobia is in the class of those that can be communicated only by contact—by the application of palpable matter. Itch and syphilis meet in the class of those that can be communicated by contact only, yet there is no reason to believe that the latter occurs *de novo*, while I think we have some reason to believe that the former does. The cow-pock is in the class of those which can be communicated by contact only—and so is itch; yet cow-pock is in the class also of those which occur but once, whereas the itch is in the class of those which recur indefinitely. Hence you see that the classes have no relation whatever to each other.

We have an instance of one (or at least we generally have an instance of one) contagious disease preventing another. The cow-pock is supposed to, and for the most part it certainly does, prevent the small-pox; but it is to be considered that it is not by any means proved that cow-pock and small-pox are not the same diseases, the former being modified. If they be one disease, the fact of cow-pock preventing small-pox merely resolves itself into the fact that some contagious diseases do not usually occur more than once; but if they be distinct diseases, then it is an instance of one contagious disease preventing another.

When a contagion has been applied, there is for the most part an interval before it operates—between the application of the poison and the appearance of the disease. This interval is various in different diseases, and in different cases of the same disease. The interval of small-pox is very short compared with the interval of hydrophobia; and then again, the interval of the latter is by no means always the same; it will vary from a few weeks to a few months. Some of these contagious diseases which are infectious, using the word contagious in a generic sense to comprise both, are very easily prevented by dilution of the atmosphere. You will find a great difference in diseases in this respect. The contagiousness of diseases which are infectious, or, if you choose to say, the infection of some diseases, is very easily annihilated by dilution, whereas great dilution has com-

paratively little effect on others. The infection of small-pox, and of measles, will sometimes operate in a very free ventilation. It is thought by some that their infection will not extend in pure air to a very great distance. But at any rate, in the purest air, we see these diseases caught by children in the neighbourhood of those that labour under them, whereas other diseases cannot be caught, if any pains at all be taken to dilute the air. As a remarkable example of this, I may mention that, if continued fever be a contagious disease, the contagion may be dissipated with the greatest ease; a comparatively trifling dilution of the atmosphere around the patient will prevent it from being communicated to any one; whereas a great dilution will not always prevent the small-pox or the measles. So easily is the contagion of continued fever prevented—supposing it to be contagious—dissipated, and a very free ventilation around the patient, there is little or no danger of any one catching the disease; and it is asserted that, in small-pox, the contagion in the worst cases will not extend beyond half a yard in the open air. Dr. HAYGATH, in his celebrated letter to Dr. PERCIVAL, says that the infection of small-pox will not extend beyond the distance of half a yard, and of continued fever much less; and this is one reason why its contagion has been denied altogether. You will find many persons who deny that continued fever is ever contagious. Granting, however, that it is contagious, we may have another reason for explaining the circumstance of it frequently not spreading far;—it may not be always contagious, but only occasionally so, like erysipelas perhaps. Another reason is, that persons for the most part escape the influence of the contagion if they be in good health and spirits while exposed to it. Now I presume that no good health, no good spirits, neither good nourishment, nor any thing favourable to health, will render a person less disposed to catch the small-pox, or to catch syphilis; but it is a fact, supposing continued fever to be contagious, that if a person be in excellent health and spirits—if he have every means of promoting health in his power—if all be healthful in and about him, he may be exposed to the emanations of a person labouring under the most virulent typhus, and yet for the most part escape. If, however, his mind become depressed, if his body become debilitated in any way, then you will see the same person become the victim of the complaint when exposed to the emanations of a typhous patient in so slight a degree, that you would hardly suppose it possible for the disease to be communicated. Many persons are exposed with impunity to the emanations from patients labouring under typhus, till their mind desponds, or by some chance they are thrown out of health, and then the contagion—if it be contagious—acts as a predisposing cause; and then this circumstance of depression of mind, or the accidental depression of the powers of the body, acts as an exciting cause. Exactly as in the case of ague, a person may be exposed to malaria, and not suffer the disease till he gets cold and wet through; the common original cause of the disease, the malaria, being the predisposing, and catching cold, the exciting cause; so in typhus, the peculiar contagion is often the predisposing, and depression the exciting cause.

These things are to be considered when we question whether continued fever is contagious or not. It is allowed by those who contend for its contagiousness, that the contagion is one which is most easily dissipated by ventilation; then, in the next place, it is allowed by them, that if a person be in good health, with every means of health in full play, he will generally escape; and if it be a fact that the disease is sometimes contagious, and sometimes not, and sometimes arises *de novo*, then we see another reason why some people have denied the contagion of the disease altogether. However, I am quite sure that much of the difference of opinion on this subject must have arisen from this circumstance, that many diseases have improperly been called typhus. There can be no doubt that many cases of continued fever which we see, are really cases of remittent fever dependent upon malaria, having nothing at all to do with contagion. Persons may be exposed to individuals labouring under remittent fever, which we see every day, and which nice observers may easily distinguish from typhus—persons are exposed to this every day without suffering the disease, and therefore typhus is continually said not to be contagious, when it is really remittent fever under which the patient labours, and which is not a contagious complaint.

Some contagious diseases are communicated from brutes to man. Hydrophobia, cow-pock, and, it would appear small-pox, are of this description. Every one knows that the cow-pock may be given to the human subject; but it is related, and therefore I suppose it is true, that some experiments have lately been made to give the small-pox from the human subject to the cow, and these have been adduced as proofs that the two diseases are the same, because by the contagion of *small-pox*, the disease produced in the cow, was the *cow-pock*. The itch is communicable from brutes to man;—at any rate it is stated that a kind of itch is produced from mangy dogs. In Germany there is a peculiar disease termed “Milybrand;”—inflammation of the melt—affecting brutes, and analogous to what is denominated “Malignant pustule,” and communicable to human beings. Malignant pustules have been produced in many individuals, by merely touching the blood of brutes labouring under a certain disease; or perhaps by merely placing a knife wetted with the blood into their mouth. There is no doubt but glanders can be communicated from the horse to man; and it is possible that all those diseases which may be so given from brute to the human subject, may also be given back. MAJENDIE inoculated dogs with the saliva of a man labouring under hydrophobia; and they became the subjects of the disease. The cow-pock may be given from the human subject to brutes. It is said that the plague has affected brutes; sheep have been observed to catch the measles; and the disease called “trichoma” may be given to animals. Persons out of health will be much disposed to some contagious diseases,—such as typhus; and other contagions act as well on persons who are healthy; but it would appear that bad health will sometimes prevent a contagious disease; for frequently cow-pock cannot be given to a child, who is suffering under any cutaneous eruption;—which may arise simply from an indisposition

of the body, to take two diseases at once. Not that the body is out of health altogether; for a cutaneous affection is often slight. Many persons who are constantly exposed to the infection of typhus, in its most concentrated form, escape; and the same with respect to the plague. This arises from habit. A stranger in a new situation will sometimes suffer immediately; while those who have been accustomed to it, will go on with impunity. Habit appears to have the same influence on contagion, as it has with regard to the aguish effects of marsh miasmata. There are individuals who have a great indisposition to certain contagions. Some children will not take the small-pox, though they sleep in the same room, and in the same bed with others who have the disease. The same has been seen with respect to measles; and after a lapse of a year or two or longer, the least exposure will produce the disease in the same person. Some run every risk with respect to syphilis, and gonorrhœa, and do not catch them; yet even these persons after a time, have caught these diseases. It is the same with respect to small-pox and measles in young people, as it is with respect to syphilis and gonorrhœa in adults. The aged and the youthful are very unsusceptible of many diseases. Many persons escape syphilis without knowing why, an individual is exposed to the poison of syphilis,—the fact of the morbid secretion being proved, and catches nothing; and yet, a fortnight afterwards, the same source may infect him.

Some deny the contagion of diseases;—some of one, and some of another; and there are even those who assert that contagion was unknown in ancient days, and that it is a modern invention. One person contended that hydrophobia was a mere imaginary disease; and that the symptoms which have occurred, have never taken place from hydrophobia. This person has, he says, inoculated himself with the saliva of a rabid animal; and has escaped; but this is no proof of the non-existence of contagion; for many escape all kinds of contagion, every day. In 1823 two medical students of Paris denied that syphilis was contagious; and they inoculated themselves with some syphilitic matter. The consequence of this was a very bad supuration in, and a partial destruction of the axilla of one,—he having inoculated himself in the hand; and the other had a bad ulcer somewhere, and became so distracted at his folly, that he opened the femoral artery, and died. Dr. WHITE was convinced that the plague was not a contagious disease; and he rubbed some pus taken from the pestilential bubo of one of his patients inside his own thigh; and from another bubo he inoculated his wrist. This was in the pest-house of the Indian army at El Hammed. Four days had hardly passed, before rigors commenced, and all the symptoms of violent fever; and he died of the plague before the end of the third day. You will read a case in the *Journal de Medicine* for May 1811, of an Italian physician named Dr. VALLI, who was so convinced of the non-contagiousness of the plague, that he mixed the matter from some pestilential buboes with a number of other things, and formed it into an ointment; calling it his “pomade.” He employed this stuff to cure sore eyes, and sore on the abdomen; and thereby communicated

the plague to thirty persons. He was convinced he was doing no injury; but the Turks differed in opinion with Dr. VALLI, and decapitated him.

LECTURE XXIX.

CONTAGION.

DR. MACLEAN, another believer in the non-contagiousness of the plague, states, that the idea of contagion is purely a modern invention—a popish trick of 1547;—that **POPE PAUL III.**, after the death of **Henry VIII.**, when the holy fathers were assembled at Trent, finding he could not manage them, stated there was contagious disease in the town; and the fathers, frightened at the invention, departed from the council. **BOCCACIO**, in his *Decameron*, gives an account of the plague at Florence. He states that the disease spread from the diseased to the healthy, as flames spread to an unctuous substance. Speaking and associating together, produced it; and the clothes or any thing that belonged to persons who laboured under the plague, produced it. Brutes caught it by touching the clothes of those who died of it. This was published in 1348; and yet **DR. MACLEAN** would have us believe that the idea of contagion was a modern invention of **POPE PAUL**, in the year of 1547. **M. LASSIS** denies all infections,—all contagions, excepting measles, and lues venerea. I presume that all those of modern date who have denied this or that contagion, committed that folly merely for the purpose of acquiring fame; but they are too late;—they are but imitators; for many older writers did the same thing. **GADBURY**, the astrologer, stated that the plague was not more infectious than small-pox, scurvy, pleuritis, ague, and gout. His book is called “*London’s Delivery Predicted*;” and published in 1665. There have been, on the other side, great mistakes committed with respect to this question. **DR. CLEGHORN** and **DR. FORDYCE** both believed that ague was contagious. Some contended formerly that scurvy was contagious; but we now know that neither ague nor scurvy is contagious, and it is certain that some diseases are contagious, which were not formerly considered so. **SYDENHAM** wrote in a style which might induce us to suppose that he did not consider small-pox and measles contagious; for he attributes these diseases to other causes than contagion. Other writers have referred these and other diseases to various causes instead of contagion.

Though some deny typhus to be a contagious disease; and I have never seen a case in which it exhibited that character, yet I cannot but believe that it is often a contagious disease. During the many years I had been physician to St. Thomas’s Hospital, where there was a great deal of fever, but by no means of so violent a description as those cases which occur at the Fever Hospital, I never witnessed typhus spreading. Perhaps the comparative mildness of the cases occurring at St. Thomas’s Hospital, may be one reason why the disease does not appear contagious to us. The emanations from the

body are not of that powerful kind, that they often are at the Fever Hospital; and it is not all, but a very small number, who labour under the disease. In St. Thomas's there is extreme ventilation and cleanliness; and this is another reason why a mild disease does not spread. There may be I have no doubt the same attention to these things at the Fever Hospital; but then they must be much less efficacious there, because *all the patients have fever*: while in St. Thomas's generally but one or two, and rarely more than three patients, are in any one of those large wards. I have no doubt that if a person have typhus very bad, and another stand beside him, even when there is good ventilation, he will imbibe the disease. There is no doubt but you can render the contagion of typhus (if there be contagion) quite inert by the dilution of ventilation, unless in some extreme cases on the one hand, or where there is a great disposition to it on the other. It is admitted by those who believe in the contagiousness of typhus, that it can be resisted effectually if the body be in good health; and there is no depression of spirits. It certainly appears to me that there are many persons who have caught typhus from others, but I never (and I see fifty cases in a year) saw an instance of this. You will find numerous instances of this in books. I have been informed that every physician and surgeon attached to the Fever Hospital, and every nurse,—every matron,—every laundress,—every housemaid, and every one employed in that institution, has had the typhus fever, and many officers have died. But the same thing has not taken place at the Small-Pox Hospital, which is built on the very same spot. This is highly important, as clearing up the point whether all these individuals had typhus in consequence of emanations from the patients, or through the situation; because I have seen individuals brought to St. Thomas's Hospital with typhus, from the midst of others who had the disease; but then I never considered *that* any proof of contagion. The disease *may* have arisen from contagion, but the fact is not proved; for it may be the situation which has caused it;—some fault with regard to a drain, or other external cause, which may have induced it, first in one individual, and then in another. For infection to be *proved*, the person must go from his residence to the place where the healthy person lives, and there give the latter the disease. If the *healthy* person go to the sick, and the latter person is in the place where he has been accustomed to live, then no one can assert that the disease has not been produced from the *situation*, and not from the *patient*. If the patient go to a healthy spot from an *unhealthy* place, and the disease then occurs there to others; or if any thing which the patient has touched, be taken from the place where the patient resides, to a healthy spot, and there the disease takes place, then it is a proof (if there be a sufficient number of cases) that the disease is contagious. Inanimate substances have become impregnated with the secretions or emanations, proceeding from persons labouring under a disease, and have communicated the disease to another. These substances are denominated “fomites.” These woollen substances are by far the most influential, they imbibe secretions and emanations, and convey

infections and contagious diseases far more than any other description of substance. In cases of malaria, some say that bushes will entangle it; and that on cutting them down, individuals have been seized with intermittent and remittent fevers, arising perhaps from the disengagement of a large quantity of malaria which had been collected. The cutting down of woods will produce the same effect; and therefore there is something analogous to *fomites* in the case of malaria; but it is in cases of contagion that to inanimate substances the term "*fomites*" is applied. It is asserted that the plague which occurred in London, was conveyed from Derby with a quantity of old clothes; and there in nothing more common than for plague and typhus fever to be conveyed by means of left off clothes. The exanthemata are frequently so communicated. I cannot say how long fomites will retain contagion. I know that an individual with measles, will give the disease to another at the end of a month; and an apartment once infected with scarlatina, will give the disease for a twelvemonth. If you heat "*fomites*" well, it will best destroy their contagiousness; and to disinfect apartments, the best things you can employ are smoke and large fires. Should the application of fomites to a healthy individual produce disease, then if there be a number of instances it is a proof of contagion; but one or two cases may be accidental.

One argument against the contagion of typhus, is that it will occasionally disappear during an extreme temperature, and sometimes without any apparent reason; whereas if it were contagious, it would spread from one to another, till all or a greater part suffered. Some say it is a disease which depends on a peculiar state of the atmosphere, and not on an emanation from a unhealthy individual; consequently it is suspended by the extremes of temperature, or it will suddenly cease without any obvious reason. Now it is a fact that the non-contagiousness of yellow fever, and of intermittent and remittent fevers, and other diseases which are not contagious, will be aggravated or repressed by extremes of temperature, and by causes with which we are not acquainted. This is true with regard to typhus, and other diseases. Epidemic small-pox is often checked by intense cold. The plague, which is contagious, is checked by intense heat or cold. The wind denominated "*harmattan*," will stop the plague and likewise small-pox (although an individual may have been inoculated) for when this wind prevails, it will prevent persons from imbibing it.

You likewise have the same thing with regard to diseases which are decidedly contagious or infectious, or both; such as remittent and intermittent fever, or other diseases which are dependent on something in the air, and not on emanations from diseased individuals; consequently this can be no objection. Measles and whooping-cough (which are allowed to be contagious,) are checked in the warmth of summer. STDENHAM asserts, that scarlatina is most prevalent when the summer is ended.

Some diseases which are decidedly contagious, will decline in a remarkable way, for example, cow-pock (which cannot be communicated excepting by contact) will sometimes decline; and to so great

an extent, that Dr. JENNER could not prosecute his researches for want of matter. There was no apparent reason for this disease not spreading as usual, or, as it is called, in the *natural* way, from the tit of the cow to the hand of a human subject; and this is highly important, notwithstanding the circumstance we have mentioned. It was occasionally so checked, that Dr. JENNER could not obtain a case of it, when he was publishing his book on the disease. Dr. WOODVILLE states, that the disease did not reappear until the next spring; at which period of the year it prevails most. Sometimes, without our knowing why, small-pox (though a contagious disease) will not affect the people of a place contiguous to another, although it is prevailing in the latter, and there is free intercourse between the two places. VAN SWEITEN states this, Sir JOHN PRINGLE states that he observed small-pox carried by recruits into the camp, without spreading. Dr. ODIER inoculated children, when the disease was not epidemic, and though they were walking about the streets every day, during the eruption of the disease, and there was free communication between the children who had been inoculated, and the others, yet not one instance was seen of the spreading of the disease; for something in the atmosphere prevented it. Sir JAMES MAC GREGOR states, that the small-pox was raging in houses at Bombay, close to the barracks; yet no one in the latter caught the disease. There was something in the situation that prevented it. BURKHARDT states that it has never been known to visit the Wady-kenous, which is a narrow shore, extending from the Cataract up to Korosko; but the disease is well known at Derr, which is contiguous, and where it is much feared. Although there was free intercourse, it was never known to proceed beyond a certain point.

If these circumstances will occur with respect to diseases which are known to be contagious, I think we should not doubt that typhus fever is contagious, merely because it will suddenly cease in a neighbourhood, or in a district, without our knowledge why, or because it may be apparently arrested by an extreme of temperature. Contagious diseases will spread in a natural way, at certain seasons; and sometimes you cannot produce a disease, although you inoculate for it. It is the same with respect to hydrophobia; for we hear of many mad dogs at one time, and then we do not hear of the disease for many months. One would suppose that the disease could be communicated easily: but we are all aware, that there is a far greater disposition to disease at one period, than at another. The interval between the application of the poison of typhus fever, and the appearance of the disease varies, as it does in other diseases. Dr. HAY-GARTH states, that of seventy-two individuals who were exposed to the contagion of typhus, five were seized within ten days after exposure to the infection; thirteen between the 10th and 17th; forty-one between the 17th and the 32nd; and one so late as the seventy-second day. These intervals are the same as those which occur in all other diseases allowed to be contagious. Hydrophobia will commence in a few days, and sometimes in a few weeks; and sometimes several months will elapse before it makes its appearance. The poison

from inoculation, produces the disease much sooner than infection ; and much sooner than when the poison is conveyed by means of the air. How long it may be dormant, I cannot say ; but we can take an instance from another poison. It is many months before ague is produced ; so that malaria becomes the *predisposing*, instead of the *exciting* cause ; and the same may be the case occasionally with typhus. It may exist in a dormant state for some time ; but how long, I do not know. Some object to the contagiousness of typhus, not only from the irregularity of the period at which it commences, but from the irregularity of the duration of the disease ; yet scarlatina, although a contagious disease, is very uncertain as to its course ; for it will in different instances shew the eruption at very different days ; —occasionally the first day on which the person is attacked. Some times it will appear before there is the least redness or soreness of the throat ; and then when the eruption does appear, it will sometimes only last a day, or a day and a half, or two days ; but occasionally it will last for ten days. Now no objection of a valid nature can be raised against the contagiousness of typhus fever, merely because it is exceedingly various as to period and duration ; for scarlet fever exhibits the same varieties. The same would also appear to be the case with respect to small-pox. SYDENHAM mentions an epidemic small-pox, in which an eruption took place on the fourth day ; which is not usually the case. But although the contagion of typhus is rendered much more active by concentration, and filth is injurious to the patient, and will make him more liable to be affected by the contagion, yet it often occurs that the greatest filth, and closeness, will not produce the disease. There are those who say that the disease is produced by confinement of air and filth. Certainly these are injurious to health, and contribute to render a person exposed to the contagion of typhus fever, the victim of disease. In the bleak regions of Kamschatska the people exist seven months in the year in *yourts*, which are eight feet under ground, and covered over by a thatched roof ; having only one small apartment, probably, for three families, and with provisions which are principally putrid fish. They eat, sleep, and do every thing in these dens, and there is a dreadful stench arising from them ; yet they have no fever, and are a healthy race, with the exception of having scurvy, which arises from the want of fresh food. The Esquimaux and Greenlanders exclude the air. They have no chimnies to their dwellings ; but an inner apartment, of which the fog and stench are suffocating to travellers ; yet these people rarely have fever, though they have scurvy. The Russian serfs possess wretched huts ; and yet it is asserted that they never have putrid diseases. Dr. LIND states, that in the slave-ships crossing the Atlantic, although the slaves are crowded below deck as much as possible, and at night are shut up under close hatches, and although they suffer from change of climate, and some are suffocated, yet they have no infection ; and if they do, it is of a much milder character than when felons are affected, who have been transported from an opposite clime. This arises probably from the high temperature being opposed to the contagion of typhus fever. In the black

hole at Calcutta, where one hundred and forty six human beings were confined from seven or eight o'clock in the evening, until dawn the next day, in an apartment about a cube of eighteen feet, which only opened to the west by two windows, which were strongly barred, *one hundred and twenty three* were suffocated, and the remainder were made extremely ill. This was in 1756. It is asserted that all that the sufferers experienced, was heat, with great exhaustion; and many of them had boils; but no fever was induced. HOWARD states that there was no fever at Venice in the prisons, though they were very close. At Naples they were so close and offensive, that the inmates were indisposed; but they had no fever; and he states that we must look for an additional cause of fever than filth and confinement. Dr. MOUNSEY mentions the same thing, with respect to the prisons at Moscow and St. Petersburg. But when fever is introduced it rages with great violence; and the fresh prisoners (when contagion is prevalent), suffer much more than those who have been longer habituated to them; so that contagion acts the more on account of the bad state into which the filthy confinement throws the system. Those persons who were habituated to those situations previously to the contagion being introduced, became gradually used to it. Although, till certain contagions are introduced among people who are confined, and dirty, and ill, they believe themselves as well as other people, yet when those contagions are introduced, they act as a test of the tendency of the former mode of life; and these persons differ in a greater degree than others, if there is no present accidental counteracting circumstances; such as great heat in the case of typhous contagion.

We perceive that mere confinement will not of itself, in general, cause fever; nor will dead putrid animal matter; for the latter is innocuous if unaided by some other matter. In Paris there were 600,000 bodies interred in St. Innocent's church-yard, in the course of six centuries. They covered two acres of ground, and the soil was raised above the streets, there was an offensive smell; but no fever was produced by it. They were partially removed in the heat of summer, till the ground was levelled; and the workmen were frequently asphyxiated and often fell down senseless; but not one was attacked with fever, although there were no precautionary measures adopted. In Seville it is stated, there is a fetid odour arising from the ground where 10,000 bodies were interred, in consequence of an epidemic, the soil cracked, and a great stench was produced, but no fever. HOWARD, that great and good man, states that at Smyrna there was a horrid smell arising from the burial ground, after a plague; and many bodies lay exposed; but no pernicious consequences occurred to the family of the Governor, whose residence was exposed to these exhalations. The effluvia from dead subjects in a dissecting-room, will not produce fever, unless the individual be either exposed to contagion, or be very unhealthy in consequence of anxiety of mind, hard study, or some accidental circumstance. Students and other individuals attending dissecting-rooms, will become out of health and be indisposed, and perhaps die from severe wounds; but

I do not know that contagious fever will spread to others, or has been induced this way. Many diseases confounded with fever have been produced, and should there be no depressing passion or anxiety, from too intense study, or want of necessary rest, or excess of any kind, I do not think that fever will occur. However, if mere stench unaided by other things, and through delicacy of constitution not counteracted by the presence of ordinary causes of health, should impair the health, I can conceive that fever may at length be produced. The grounds belonging to nightmen, are offensive enough; yet those persons are as healthy as other individuals. Near Bristol a spermaceti manufactory existed for two years; the stench from which was extremely offensive, but no fever was produced by it. It is stated that an old bone-manufactory, near Oldland in Gloucestershire, where bones were used for the purpose of procuring muriate of ammonia, a great stench was produced; and yet there was no fever. The superintendent removed to a house on the top of a hill; and he and his family lost their health; and had an idea of returning back to the stinking manufactory, in order to recover it. Blood is kept in sugar-manufactories, until it is putrid; and yet persons do not suffer from fever, leather-dressers are exposed to offensive smells; and they do not have fever, I think that confinement, emanations from crowded people amidst the greatest filth, will not produce fever; and also that animal matter, in a state of the greatest putrefaction, does not of itself produce contagious diseases. Perhaps the persons exposed to these things may be well fed, and possess good spirits, and other means of promoting good health.

If any matter which is in a state of putrefaction,—as may be now or was formerly the case in dissecting-rooms, or in bone-manufactories and other places where putrid blood is employed, and from which there are extremely offensive emanations,—could alone produce diseases of a contagious nature, we should have fever every day, where we have now excellent health. If these things throw a person out of health, then any contagion or any other cause of fever, will act intensely, and disease will be produced. This is believed with respect to cholera.

LECTURE XXX.

CONTAGION.

GREAT cleanliness and good ventilation will dissipate the infectious matter; so that no practitioner need be alarmed if in good health and spirits, unless there is great intensity, and the emanations are applied to him in a concentrated state. If a practitioner contract the disease when in good health, and there is good ventilation, it is generally from going so near the patient as to inhale the emanations which proceed from him, in full concentration. But should the practitioner be out of health, and the disease intense, and the ventilation bad, he will imbibe the disease easily.

Those who wish to examine this subject particularly, may consult the work of Mr. THACKRAH, on the diseases of different occupations. Butchers who slaughter animals, are exposed to more or less stench,—"They have frequently to handle and cut up animals in a state of great putrefaction, as well as those which are found to be diseased."—Glue-manufacturers, buckram-makers, tallow-chandlers,—are all exposed to stench, and yet they enjoy robust health, and are a great deal more healthy than bakers, Professor ORFILA states that the knackeries where there is in summer excessive putrefaction and the soil has been saturated for many years, are very healthy. These exhalations do not hurry decomposition, even of dead animal matter.

In the vicinity of the Hotel Dieu there is a dissecting room, in which the stench is so great that, after numerous petitions, it was removed. Ragouts, bouilli, and all kinds of good things kept as sweet in the midst of this offensive odour, in a place accessible to this stench as in any other place. A soldier of the imperial guard turned gut-maker; and he stated that although his premises were truly offensive, and filled with large masses of corruption, yet nothing on them spoiled. We cannot however deny that, although these things do not generate fever, yet they operate strongly with other causes. If actual contagion be introduced into a place which is offensive, then these things appear to operate; and the injury is greater on account of the confined situation, and the exhalations from the putrefying animal matter. Can this contagion be generated afresh? There is no proof that certain contagions can; but certainly others may. If there be such a thing as contagious fever, can it be generated *de novo*? I cannot say,—never having seen the disease contagious. Depression of spirits,—want of good food,—want of the necessary rest,—confined situation,—bad air, may (by all conspiring together) produce *fever*; but whether they produce *contagious* fever, I do not know, I have seen many young men ill, through intense study, and from being much in the dissecting-room;—being anxious because they are fresh from the country; and from being about to pass examination, of course their anxiety was very much increased;—these have certainly had fever; but I have never seen their disease spread contagiously. Some assert they have; and they inform us that typhus fever is a disease, the contagion of which may be generated *de novo*; but though it is highly probable, yet you must be guarded in listening to such assertions,

You will find, in old writers, mention made of a disease, which occurred in 1577 at Oxford, at what was termed the *black assizes*. Some prisoners were brought out of prison, where they had been in close confinement, with little or no ventilation; and they were extremely unclean. A stench arose, and was thought to emanate from the prisoners. Some of the judges and justices, the sheriff, and most of the jury, were seized with illness; and died in a day or two. Six hundred more, were attacked; and in the next three days, three hundred more, and before five weeks had transpired, five hundred and ten died. The symptoms are described as having been violent pain in the head and abdomen, with delirium. Some contended that this

disease was generated by the confinement of these prisoners; and that although they did not themselves labour under the disease yet the contagion proceeded from them, and induced it in others. There were others who stated, as their opinion, that the disease was not contagious. The court, it is stated, was held in the yard of the castle, which was only a small distance from the river Isis; the banks of which were low; and it is recorded that a great damp (a *breath*, or *fog*) arose among the people; and some assert that, at the same time, a horrid stench was smelt, by which some people were smothered. The weather was excessively hot. The disease was not the plague; but the physicians would not give it a name. From these circumstances some writers contend, that the disease did not proceed from the prisoners; but that it was produced by exhalations arising from the damp earth—a peculiar exhalation: that we have no proof of its contagiousness; and that typhous contagion rarely affects so instantaneously. Women, children and poor persons, are said to have escaped. Some embraced a different opinion; and stated that it was entirely owing to the poor Roman Catholics, who employed the art of magic;—that it arose from diabolical and papistical arts;—that it was produced by popish blasts, which emanated from the lowest depths of hell (a laugh.) You will find this senseless bigotry in Wood's "History of Oxford." This stupid opinion seemed favoured by the circumstance, of the damp or fog having arisen in the court as soon as sentence of loss of ears was passed on a book-binder, who had been constantly speaking against Elizabeth's government, and the reformed religion. There is on record another singular instance, which took place at the Old Bailey; when several persons were taken ill, after the prisoners had been brought into court from their close confinement. This was much the same as the Oxford affair; but there are objections to this; and many contend that it arose in consequence of a draft of air from a window blowing in on those who suffered.

My opinion is, that typhus fever is sometimes contagious; and that it may be made so under very unfavourable circumstances. It may be *always* contagious; only that contagiousness is so mild and diluted, that it does no harm; and that it belongs, like cholera, to those contagions which are not only rendered powerless by moderate dilution, but are so also on the frame which is healthy and vigorous. We are informed by THUCYDIDES that before the plague of Athens, by LIVY previously to the plague of Rome, and by HODGES before our plague of 1665, that great crowds of people were collected together in each city; that, in the latter case, the sky was serene, and the air stagnant; and that the rich escaped, so that the disease, according to CLARENDON, acquired the name of the "poor man's plague." I will not pretend to say whether the contagion can be generated afresh; but I believe it may. If a person be placed near one who has typhus fever, and a considerable length of time afterwards he is exposed to fatigue, and other predisposing causes of fever, and is seized with it, we cannot say whether the contagion has lain dormant all the time, or whether the mere force of the predis-

posing causes, has alone induced the disease. You may adopt either side of the argument; and you cannot disprove either of them. Beside malaria being a cause of remittent and intermittent fever, and also of continued fever, it is very probable that there are certain exhalations which do injury by producing disease. SYDENHAM thought that epidemics arose from some peculiar changes in the bowels of the earth. It was mere fancy. BERZELIUS mentions a singular thing. He was making experiments with sele-niuretted hydrogen; and after a certain period (not instantly) catarrh came on, and continued a very great length of time. The quantity which he inhaled, did not produce any very great irritation at first; but after a time, it acted as all specific poisons do. Some persons, from this, believe that volcanoes may send forth a particular substance, which is capable of producing a peculiar operation on the human economy. It is not improbable that various exhalations may arise out of the earth, independently of the exhalations from diseased animal bodies, and exhalations from putrefying vegetable matter, on the surface of the earth. Persons who have died of typhus fever, rarely give the disease after death; and typhus, whether contagious or not, if epidemic, grows milder and milder the longer it continues, though it be spreading more.

Some suppose the disease is all in the solids; others think that it is all in the fluids. The latter are denominated "humoral pathologists." They suppose that a certain something is in the fluids, which is deleterious to the body; that a process is going on analogous to fermentation, which they term "concoction;" and when the "peccant matter" is separated, the process is termed "despumation;" and provided it is thrown off altogether, then there is a termination of the disease. There is not the slightest proof of any such process occurring. There is proof of a depravity of the fluids; but none with regard to concoction and despumation,—of a fermentating and despumatory salutary reform of the fluids. There is nothing peculiar thrown off, when excessive secretion takes place; as at the crisis of intense diarrhœa, or when sweating occurs; or if there be, we do not know it; therefore it is mere supposition to say that it takes place. So, when hæmorrhage occurs, there is no proof that the portion of blood which exudes, is more vitiated than the rest; for it is to be remembered it is only a portion of the blood itself that escapes. In all probability these changes of the fluids are caused by the solids in the first instance. A morbid cause makes a peculiar impression on the body, as a living system; it impresses the solids; and by the operation of the solids, the fluids are secreted in a vicious manner, and depraved in quality. Perhaps the vitiated condition of the fluids, is caused by the solids not having properly manufactured them; unless indeed a quantity of improper materials are supplied to the body; which, without any fault of its own, can make nothing of. In that case the solids are not in fault; for they are compelled to manufacture a bad article, because they have improper materials. With the exception of this, I think the fluids must become depraved through the solids; though, of course, they again must exert an injurious influence. It is true that fever will constantly terminate

without any diarrhoea, or sweating, or loss of blood; and it is possible when these things occur, they result from the whole becoming healthy together. You may get a patient to sweat profusely in fever; but in all probability he will be no better for it; but if you get him better, then perhaps he perspires. But this is not the result of sweating. You have improved his condition; and sweating occurs, as it were spontaneously. Very often, in fever, diarrhoea occurs without any relief. You stop it, and the patient is all the better for it. This critical discharge, when it takes place, and when the patient is improved at the same time, is for the most part too small to impair the improvement. It would appear that the discharge is rather the *consequence* of the improvement, than the contrary; for improvement occurs, and the discharge takes place as a matter of course. Some have thought that in fever the blood is too thick, and will not flow. This is mere supposition. Others have thought that fever is the result of spasm of all the small vessels. I presume there is spasm in fever; for as long as the solids do not secrete, we must assume that the vessels are closed,—that the fluids cannot escape; but although there be spasm at a certain time, when the secretions are deficient, and though we admit that there is *one* striking circumstance, yet there is no reason for supposing that it causes *all* the symptoms. Some have imagined that debility is the cause of fever; but persons are weak without having fever; and should debility be one of the *circumstances* of the affection, yet there is no reason to conclude that it is the *cause* of the symptoms. Some will assert that it is a universal inflammatory state; and others say it is only a local inflammatory state; and some of the latter say this local inflammatory state, is seated in *one* part, and others say in another. The body, in fever, is often throughout in an inflammatory condition; and there can be no doubt that there is continually local inflammation; but there is something more than all this fever. There is a peculiar feeling of debility; there is also a peculiar look of the face; there are general pains at first in the loins, with a tremulous tongue, and universal disturbance; such as you do not perceive from any simple local inflammation, in any one part; and many of these symptoms are not referable to an inflammatory state. If, too, the disease be contagious, this proves that there is something more than mere inflammation. The local inflammation which takes place, is by no means proportionated to the violence of the fever. In some instances you will have death at the very commencement, without any inflammatory condition being produced; just as in small-pox (which is decidedly a contagious affection) you will have a patient expire before any inflammation becomes visible;—death being the result merely of the depressed state of the system. General or local inflammation, although it is a circumstance which often occurs in fever, is notwithstanding entirely insufficient to explain the whole of the symptoms. It is one fact in the disease, but not the whole; nor is it a fact from which any person can prove the other set of symptoms to arise. There are those who conceive that fever is not situated either in the solids or fluids generally, but in a particular part. HOFFMAN considered it to be a dis-

ease of the nervous system. The nervous system is affected; but so also are the secretory organs, and therefore others have just as much right to assert that it is a disease of the secreting system. Dr. PHILLIP supposes it to be an affection of the capillaries throughout the body; but then there is a peculiar affection of the nervous system in general, and a particular disturbance of the abdominal organs. Some have fixed upon inflammation of the brain. Former authors have done this; and a modern physician [Dr. CLUTTERBUCK, we believe] has done the same. BROUSSAIS considers it to be inflammation of the stomach and bowels; and terms it—"Gastro-enteritis." I believe the head, and the abdomen also, are continually in a state of inflammation; but now and then the former is far more affected than the latter, and the converse. They do not bear any proportion to each other. Now if we assume local inflammation to be the cause, and if we observe the phenomena of many cases, we have no more right to settle the affection in the head, than in the abdomen. Very often you will perceive the disease progressing, and proving fatal, without any marks of inflammation, any thing decided, such as bears a proportion to the general depression of the system. You will observe peculiar symptoms in this disease, which mere inflammation will not explain, such as the aspect of the countenance, the tremulous tongue, and the extreme debility of the frame; and you should recollect that the fluids undergo a peculiar change, as the disease goes on, and the debility increases, the saline matters of the blood are more or less deficient; and it becomes more and more watery. Dr. STEVENS says we can remedy this state, not by the remedies of inflammation, but by supplying the deficient substances in the blood. There are those who suppose inflammation will explain every thing;—not only changes of structure, but every thing else that takes place morbidly in the body. Certainly it is the first morbid circumstance that occurs in the body;—it is the first circumstance that takes place in many changes, and it accompanies them; but there is no proof that this is always the case. Syphilis is an inflammatory affection. The first thing that is seen, is a pustule, or a mere inflammatory speck, followed by ulceration; the next is an inflamed gland, and when other symptoms arise they are more or less inflammatory. Should you draw blood during the secondary symptoms, you frequently see the blood buffed; and you have inflammation in different parts of the body. But syphilis is something more than inflammation. So it is with cancer, with encephaloid disease, with melanosis, and I think with fever. Inflammation is a part of many diseases; but it is not sufficient to explain them altogether; or a mere case of phrenitis would, in every instance, be a case of fever; every case of inflammation of the bowels or stomach, if there should be a certain degree of excitement, would be a mere case of fever; which it certainly is not. Another argument against fever being mere inflammation, is that it is often cut short by an emetic, or by a cold effusion, in a very early stage. This you could not accomplish, if the disease were nothing more than local inflammation. Inflammation will not explain the difference between typhus fever and plague;

which, although different diseases, yet are in many respects analogous ; nor will it explain scarlet fever, or measles ; yet they are both inflammatory in a great number of cases. But there is something more than that ; the system is in a peculiar condition, and inflammation is merely one of the circumstances. There are some who believe that inflammation produces even intermittent fever ; but this is a mere assertion. I really do not know what fever is ; and I think it is a blessing to know one's own ignorance ; for that knowledge will incite us to further examination. I imagine that we do not know the peculiar state of the system in typhus, any more than we do in measles, or whooping-cough. Some peculiar cause has operated on the body ; and a peculiar state has been thereby induced, the effects of which only we can perceive. The treatment of fever is in the highest degree rational, and extremely successful. Free ventilation is indispensable ; perfect cleanliness ; plenty of washing ; clean linen. If you have plenty of fresh air and fresh water, you may go on very well ; and should there be any stench which cannot be removed by washing, then employ the chlorides, by sprinkling them on the bed or floor, and disposing them in saucers, or on rags dipped in solutions, and hung on the backs of chairs about the rooms ; with some placed in the utensils which are employed. This will prevent unpleasant smells, and contamination, should the patient, when you see him first, be dirty, prescribe soap and water before any thing else. When he is cleansed with these all over his body, especially his lower half and extremities, (a portion of which are often very filthy) you should have him washed with plain water, several times a day. Soap is not any longer required ; but sponging several times in the course of the day, is necessary. I believe it is always safe in fever, to wash the patient with warm water ; but if he asserts he is hot, or you know he is so by feeling, you may employ cold water. Should the temperature be steadily above 98, as ascertained by a thermometer placed under the tongue, or in the axilla, and should there be no pulmonic affection,—no general profuse sweating, and the patient does not say he is chilly, you may take him from the bed, and pour a pail of cold water over him. After this cold effusion, the patient must be dried, and placed in bed ; and as soon as he grows hot again, the same plan may be resorted to. This makes him exceedingly comfortable, frequently induces perspiration, and often sends the patient to sleep, and occasionally it stops the fever. Generally I do not find the heat steadily above 98. I do not find patients free from a certain degree of chilliness ; and I use therefore tepid or cold ablution. I have never had occasion to employ affusion ; but under the restrictions just mentioned, it is always safe. The cold bath is too chilling. It would strike too suddenly. I always make it a rule to consult a patient's feelings ; and if I think he cannot bear much cold, I have him stripped and sponged all over with tepid water ; and between this treatment, basins of cold water should be brought to the bed side, and he should be permitted to place his hands in them as long as he chooses ; and his face likewise should be washed. Should there exist any pulmonic affection, or should the patient declare himself chilly from the

ablution, then you should make it tepid. It is a great comfort, it cools him considerably; and it does not produce the impression that is made by cold water; but yet a degree of evaporation occurs, and it extracts a portion of the patient's temperature. When you apply it, the temperature need not be 98;—from 80 to 90 is sufficient. It cools him by its subsequent evaporation. The patient should have but few clothes on him; and the windows and doors should be opened (unless he feels chilly, or the draught is great) in order that he may have free ventilation, and a cool temperature. As the disease lasts longer, you must apply cold the less. You will perceive there is not the same power of generating heat; that the patient is not so hot as he was previously; and consequently the application of cold is not so proper; and you find it necessary to employ tepid ablution; and as the disease advances, and the patient is getting better, there is less necessity for much abstraction of temperature. You find ablution, whether warm or cold, gradually less required; and you find a low temperature less and less wanted. General ablution is employed for the purpose of cooling, and it should also be used for the purpose of cleansing; especially the hands, feet, and head. The temperature of the room should be attended to. If the patient be delirious, you will of course not attend to the representation of his feelings; but if he is calm, and says the temperature of the apartment is unpleasant, then you should diminish it. It is good practice, at the commencement, to give an emetic; but if you find tenderness on making pressure at the epigastrium, on any part of the abdomen, I would not administer it, nor would I should there be violent determination of blood to the head. An emetic, consisting of a grain of tartar emetic, with a scruple of *epacuanha*, is best; but I should not think of exhibiting it, without ascertaining whether the abdomen was tender on pressure or not. SYDENHAM advises us to prescribe bleeding, previously to giving an emetic. This practice is not always necessary; but if the pulse were full, and there were great signs of determination of blood to the head, I would resort to bleeding first. Whether you give emetics or not, you should scrupulously attend to the state of the bowels; and see that no filth collects in them, any more than on the surface. They should be opened freely, for the most part every day, from the commencement of fever. Should they be confined one of the best remedies is, from two or five, to ten, fifteen, or even twenty grains of calomel, of course, the dose must vary according to circumstances; but in general five grains of calomel, followed by castor oil, every two hours, will answer every purpose. Occasionally you will have obstinate constipation for many days; and should this occur, you may exhibit ten grains or a scruple of calomel, followed by castor oil; but if a few grains would remove the constipation, then it would be improper to give the larger dose. You are likely to accelerate its operation, if you give a common injection. However, you need not resort to this, if the bowels are sufficiently open. Sometimes it happens that they are *too* open; then purgatives would be highly improper. This treatment you must adopt at the commencement of the disease; but ablution may be continued as it advances. You will find it good

practice to clear the bowels out with calomel; but sometimes you find another purgative useful in setting it off; and you will perceive the necessity of giving smaller doses of calomel, or other preparations of mercury, during the progress of the affection.

LECTURE XXXI.

TREATMENT OF FEVER.

ACCUMULATION and torpidity do not always exist, for occasionally we have diarrhœa and the whole of the abdomen is tender, therefore purgatives would be more or less injurious. You will generally find it necessary, to exhibit calomel early. Perhaps shortly after you have given the emetic, you may repeat it sometimes every day or every other day. You will find, that a small dose of calomel, or some other form of mercury at intervals during the twenty four hours will be very beneficial. This may be quite sufficient to keep the bowels open without anything additional, but if two to five grains exhibited every eight, six, or four hours does not effect that object, then, you must accelerate its action from time to time by an injection below, or by a moderate dose of castor oil, some give senna and salts, but, the oil I think is preferable. It is requisite before there is debility, to have two or three stools a day, but if they occur without medicine, and should they appear of a watery character; you must restrain them, or they may sink the patient. There is no rule for the dose of calomel, but should you exhibit mercury repeatedly and in small doses, it will generally keep the bowels in an open state, frequently more so than is desirable. Purgatives are of infinite service in fever, but their use has been exaggerated, some writers conceive you have only to turn the patient inside out in order to effect a cure, but this is not the case. Sometimes there is a great disposition to diarrhœa, and it is necessary to restrain it, but every one will perceive the necessity of removing filth once or twice a day. You should never permit costiveness, for it causes the tongue to be brown and dry, and except in the last stage of fever, where there is excessive debility; you should have one stool in twenty four hours. Thus small doses of mercury, with the treatment already mentioned, will in many cases cure fever, such as I see. While in other instances you will adopt more active treatment, you must take blood from the arm or by local depletion, venesection is certainly not requisite for mere generally increased action. If an organ does not suffer particularly, or should there be no great excitement of any one organ, if there be mere general excitement of the system I do not believe that venesection is requisite. But should you know that the epidemic is of such a character that inflammation is sure to supervene, you should then bleed from the arm in order to prevent inflammation from being as violent as it otherwise would. In those fevers which I see in London, venesection is not required in one case out of forty. But in the country where the people are strong and plethoric, and in hot countries where the

excitement is excessive, the congestion within the head, chest, or abdomen, is very considerable, and the lancet is indispensably necessary. Whereas in a majority of cases of continued fevers seen by me, venesection is not requisite, and I am confident that those who employ the lancet extensively if they do not kill their patients yet they prolong the disease. You will find it beneficial to adopt local bleeding, and except in hot countries, a great deal of good may result from it. It will not produce that shock which general bleeding does, which is desirable in mere inflammation. In fever this is not required and in comparatively mild fevers it would render the disease severe, while in those of asthenic character it would knock down the patient. It is not imperative in every case of fever, to be continually looking for local inflammation, to ascertain the state of the affection of the head, chest, and abdomen. You should always ask if the patient complains of head ache, and look at his eyes to see if they be red or not. Ascertain if the pulse be full, and ask if there be any throbbing of the head also, whether there be any difficulty of breathing, and should there be, then it is right to apply the stethoscope, to discover what rattling there is. You should examine carefully the abdomen every day, in order to learn whether the stomach, intestines, liver, peritoneum, or other parts are inflamed. And should you perceive a sufficient degree of inflammatory disturbance of these parts, then it is proper to draw away blood locally. Should the head be affected, you ought to cup at the back of that organ, or apply leeches to the forehead, temples, or behind the ears. If the abdomen be affected, it is always better to employ leeches there, I have seen parts relieved where they have been applied, while the other parts in the neighbourhood remained as painful as before. At whatever part of the head pain is felt, there you should direct your treatment, should there be delirium, accompanied with pain, and heat of the head, or throbbing, or if the eye be red, or if there be great vivacity, similar to incipient delirium of an active character, you should always shave the head, to apply a cold wash or a bladder of ice, which is one of the best remedies, with plenty of leeches, or cupping at the occiput.

Should there be vomiting, or tenderness at the epigastrium, without vomiting, you ought to apply leeches there, which are the best things because tenderness and vomiting generally arises from inflammation of the mucous membrane, and leeches will remove it, by removing the causes of inflammation. So with respect to the abdomen at large, when that is tender, there is usually more or less diarrhoea, the intestines are acting violently, and the leeches freely applied are the best remedy to restrain it. And after they have been applied, you then employ a blister, but recollect that it will not take the place of local bleeding, if the inflammation be considerable. Should local inflammation exist, you will find very often, that leeches will remove it, and after it has greatly subsided slight inflammation or mere irritation may be left, then a blister is of the greatest utility. When you have drawn a proper quantity of blood, or in case where the loss of blood is not advisable, blisters applied to the nape of the neck, and behind the ears are extremely beneficial. If you apply a

blister to the summit of the head, it is very painful, and I would not employ one there only as a last remedy. Before the inflammatory state has much subsided and before there is really more of irritation than inflammation, the application of blisters would of course be doubtful, almost any where, but especially at the summit of the head, there would certainly be far less hazard if they were applied to the nape of the neck, occiput, and to the forehead. Leeches must be employed at intervals, and as long as the local symptoms demand them on the one hand and the strength of the patient will endure them on the other. Should local inflammation or irritation exist, and you do not wish to apply even leeches, or blisters, mustard poultices are of great utility. They are useful applied over the epigastrium, for they will stop vomiting, they are serviceable over the abdomen. They are employed by many also in the early stage, to the feet, in order to excite distant irritation. In many cases of these fevers, you will find that mercury is of the greatest benefit, particularly if there be a degree of inflammation, and great foulness of the tongue. It not only purges the patient, but by degrees it causes the tongue and interior of the mouth to become moist, and when this occurs, the patient's condition is almost always improved. But it should not supersede local bleeding, for it will increase the beneficial effects of a detraction of blood, and where that is not required, it will do alone, but where that is requisite, mercury must not supersede it. I have many times omitted the mercury and I have perceived the tongue grow darker, and fouler, and on resorting to it again, I have observed the mouth resume its moisture, and the tongue to cast off its foulness. But there are many cases of fever that will do without mercury, yet the majority of cases where mercury is exhibited, the success is greater than when it is not given. The moment the mouth becomes moist provided proper detraction of blood has been resorted to, with all other suitable measures, the local symptoms of inflammation generally decline, and persons recover more rapidly than they otherwise would, and some recover who probably would not, had you not resorted to that practice. You should not desire any violent affection of the mouth, but should that take place, the medicine should be discontinued until the symptoms remit. The patient's gums should be felt every day to ascertain if the mercurial effect is maintained. Mercury will take effect sometimes, not in consequence of having cured the disease, but because the affection is becoming better through the nature and general means which have been employed. When mercury does good you have this fact, that if you exhibit it quickly to get the mouth sore, the sooner that object is obtained and *cæteris paribus* the sooner is the patient improved. Occasionally calomel is too active for the intestines, and blue pill, or *hydrarg. c. creta* answers better, even these after a time will cause purging, and you will find it necessary to combine with them the exhibition of chalk mixture or an effusion of catechu. It is good to give the infusion of catechu or kino, for it will enable the patient to bear the mercury. You will often perceive that *hydrarg. c. creta* is the only mercurial preparation that can be endured. Mercury if

carried too far, increases the mischief by inducing great irritation of the alimentary canal. Good remedies require that they should be properly employed. Small doses of opium will tend to check diarrhœa, and frequently there can be no objection to five drops of the *linctura opii* three or four times a day.

I do not think that antimony is an appropriate medicine, because it irritates the stomach which is not required in fever; and there is so frequently a disposition to sickness, that it is likely to excite vomiting. Should you give mercury at the same time, the antimony has a great tendency to counteract its effect, and it may cause the mercury to be rejected. I have never perceived material good done by it. It would be a good remedy pushed to a large quantity in cases of decided inflammation; but when the case is attended by irritation of the alimentary canal, (and many attacks of fever are) and the patient has but little strength, I am confident that it is better not to give antimony, for you may make the patient's stomach so irritable, that it will not bear anything. Where there are decided marks of inflammation it may be given, yet I prefer mercury. Then as to its sudorific effects, I have exhibited *liq. antim. tartarizati* in very large quantities, without producing sweating. The best mode to insure sweating in fever, is, to clear out the bowels, to reduce the temperature of the surface, and to draw away blood locally, or generally, as may be requisite. I have seen persons lying in a carpeted room, the windows being shut, and having a plenty of bed-clothes on, and sometimes a fire to produce a diaphoresis, but it never came. When on opening the windows, removing the clothes, extinguishing the fire, removing the carpets, purging the patient well, and removing any local inflammation if present, diaphoresis has appeared directly. The idea that a few grains of antimonial powder, or a fraction of a grain of tartar emetic, given once or twice a day being important in fever is absurd. Now the treatment here stated will be sufficient, and nothing more will be requisite, till great prostration of strength sets in. Cool drinks are good, and a saline draught is as proper as you can give. Patients will require from half a pint to a pint during the day, but you should recollect that all acid matters, and even a saline draught, possesses a tendency to increase any irritation that may exist in the bowels, and diarrhœa is often kept up, by continuing a saline draught. Should there be no purging, and if the alimentary canal be perfectly tranquil, acidulated drinks are very beneficial. However cold water, and plenty of it, is best.

When the symptoms decline, the remedies must be diminished in force, and frequency, and there may be less abstemiousness observed. Nourishment may be gradually given, and one of the most nutritious is milk. You should never continue starving your patient when the fever has left him, for then the appetite is much keener than it ever is after any other acute disease. Some will declare they are extremely hungry, others that they desire full diet. You will find patients more emaciated after fever than after any other acute disease. When there has been no evacuations, or when the disease has not been attended by any great evacuations, you will still have a de-

gree of emaciation, which you will not observe any other disease. When the fever is over do not deny your patient food. I give them light animal food, plain mutton, and good fresh beef, not pork, or veal, or artificial trash. Suppose the disease does not run on in this mild form, or the inflammation becomes subdued as in any inflammatory disease, but that marks of intense debility supervene, you must resort even in the midst of fever to good nourishment. Plenty of milk, as much as the patient can drink, and strong beef tea. There are practitioners who conceive, that the digestive process being suspended in fever, animal broths cannot be digested, but I know that persons who take strong beef tea, made from a pound of meat chopped extremely small, and boiled in a quart of water, until it is reduced to a pint, often do well. I have observed some take two, or three pints during the day. Some require only one pint, and those who take it, are very much nourished. Some persons cannot take milk, but it is an excellent beverage. Arrow root, sago, and rice, may be taken with milk. Sometimes you will see the propriety of giving more nourishment than you can get down by the mouth, and should there be excessive prostration, it is beneficial to give strong clysters of beef tea, in which an egg may be diffused. I have seen them given every four hours, in order to get the patient through the disease. Should the clysters be discharged again before they have been efficacious, you will find it beneficial, to put in a drachm or two of powdered catechu in each injection. Sometimes it is necessary to give wine, but if you give it as a general remedy for fever, you will kill half your patients; but should you give it in the latter stages of the affection, or the disease be attended with great debility from the first, you will then often do good. Frequently it is necessary, but not at the commencement of fever. I have seen cases where a glass, or two, has stopped vomiting, and diarrhœa. It is where there is great irritation, rather than inflammation, and you find the pulse feeble, almost fluttering, and you perceive by the appearance of the patient, that he is sinking, wine has proved beneficial. Sir JOHN PRINGLE states, "In our malignant fever, when the pulse sunk, it always became very frequent, and in proportion as it rose, with the wine, it turned slower. I have seen the good effects of wine when the tongue has been foul and dry." Here you have an illustration of the absolute necessity of attending to more symptoms than one. A dry and foul tongue, often indicates inflammation, but if you discovered no inflammation present, but on the contrary, great prostration of strength, with a fluttering pulse, an anxious countenance, and the patient unable to move, then you need not fear foulness, and dryness of the tongue, but give wine. Sir JOHN PRINGLE states, that "in proportion as the patient grows stronger, the pulse becomes slower." In health wine always accelerates the pulse, but when a person is weakened by disease, and the pulse is quick, in proportion to the weakness, and when this state does not arise from inflammation, but actual exhaustion, wine instead of quickening the pulse, makes it slower. Sir JOHN PRINGLE states, that "the surest indication for wine, is taken from the long continuance of the disease, the languor,

and dejection of strength—the slowness, and faintness, of the voice, but we can never be absolutely certain of its effects, till we try them.” You should be careful of this, for you continually meet with cases where you are in doubt, as to the proper mode of treatment to adopt. You are not certain whether the time has arrived, at which you are to treat the case as inflammatory or not. Whenever a suspicion arises of this sort, it is best to combine both modes of treatment, to lessen any excitement, and to commence stimulating, and tonic remedies, with the utmost caution; and whichever you observe do good, you should increase, and substitute it for another plan. Sir JOHN PRINGLE has seen in cases of this kind, strange instances of the power of instinct, for when wine was to do good, the sick swallowed it greedily, and then asked for more. When it was to heat them, or raise delirium, they either shewed an indifference, or an aversion to it. It is of the first importance in fever to attend to the wishes of the patient, should he be free from delirium. Sir JOHN PRINGLE states, sometimes the physician can have no better measure for the quantity requisite, than the appetite of the patient. Sometimes half a pint of wine is required in twenty-four hours, one glass at a time, and a pint is generally the utmost that is necessary; although I have given a bottle with advantage. You had better not give Rhenish wines or thin claret, or any acidulated wine, for if diarrhœa be present, it will increase the irritation of the alimentary canal. Sweet wines are not good, for they tend to ferment, and become acid in the stomach. Sherry, Port, and Madeira, are best. Should there be no irritation of the alimentary canal, but a torpid state of it, of course acidulous wines may perhaps be used. Should your patient be accustomed to, and desire porter, it is very good, but you must give him a wine glass or two, (not a pint at once) every few hours, or probably only once during the twenty-four hours, because a person desires porter, you are not on that account, to give him a pint in the twenty-four hours. Should there be mild delirium, not delirium ferox, but delirium attended with muttering, or when the pulse is rapid and weak, and when extreme debility has supervened, then it is proper to resort to this treatment, because it will often stop or check the delirium, but after it has stopped it, if you continue it, it will frequently bring the delirium back, and increase it, so that you observe the patient worse than before. In this condition some give *ammonia* and *ether*, but I think that wine, or good malt liquor is preferable, except that malt liquor will bring on diarrhœa. It is certainly much better to give those stimulants which people prefer, than to give ammonia, or ether, for they are natural stimulants, and are much more grateful to the patient. Care must be taken with all these things, not to overload the stomach, for the instant you find the head affected by them, or the stomach overloaded, it may be necessary to give an emetic. I prefer giving wine to what are termed *vegetable* stimuli, such as *serpentaria*. They may be good, but I have always been able to do without them. Dr. STEVENS states that he has seen great benefit arise, far greater than from any thing else, from very small and repeated doses of carbonate of soda, nitre, muriate of soda, or oxmu-

riate of potass, in remedying the deficiency of saline particles in the blood. Dr. STEVENS possessed a vast collection of testimony in favour of the saline treatment in yellow fever, where after a certain period, ordinary treatment generally does more harm, than good. In all such fevers, he says, in the first instance, it is the best practice to bleed the patient, and give mercury; but after a certain period has arrived, the blood falls into the condition I formerly stated, and that condition is made worse by mercury, and of course by bleeding. But Dr. STEVENS states, it is admirably remedied, by small doses of neutral salts, particularly those I have mentioned, twenty or thirty grains every three, or four hours, except of the oxmuriate of potass, of which about a third of this quantity is a dose. Dr. STEVENS informed me that in yellow fever, many had agreed that they did their patients more harm, than good by treatment—that those succeeded best, who gave nothing but saline draughts in large quantities. Neutral salts are given in large quantities now, and with the very best effect, for they are solutions of a neutral salt. Neutral salts will redden the blood. By adding neutral salts to the blood, however black it may be, you make it of the brightest scarlet, but if you add acids, or alkalies to red blood, you render it black.

QUININE.

The best tonic is quinine. Should you attempt to support the patient by this means, you may give it in doses of three, or four grains every three or four hours. I believe I have preserved patients in the last stage, when there has been no longer room to exhibit mercury, not only by supporting them well with good nourishment, and wine, but by giving sulphate of quinine as a tonic. It may do injury by purging, consequently you should be cautious, by giving astringents at the same time. I often give catechu with it, which generally stops the irritation. Some give opium in small doses, in the last stage, in order to keep up the excitement. Sir JOHN PRINGLE and Dr. WALL have done this, while others, have given a dose once in twenty-four hours, to tranquillize the system. I know that when a patient has suffered long from fever, it is quite safe to give him a dose of this kind. I think that wine is a better stimulant than opium, although the latter is very useful in the latter stages of the affection. There are those who speak highly of musk. I need not assert that morphia is often greatly adulterated. It is asserted that opium is not always of a certain strength, but that morphia is; but when adulterated morphia is of the same uncertain strength as opium, the latter is very useful in procuring sleep and in putting a stop to vomiting and purging. The muriate of morphia is an excellent and perhaps the best form of opium.

The treatment of fever, consists in subduing inflammation on the one hand, or supporting the strength on the other, and you must carefully look out for local symptoms, and check them. Vomiting is very frequently urgent, and very distressing to the patient, and although effervescing draughts and hydrocyanic acid will stop it, yet

they will not if there be inflammation present, and you must employ leeches, blisters, or sinapisms. With respect to purging, opium will often stop it, so will astringents, but it is not well to give astringents if inflammation be present, leeches, and blisters will then effectually subdue it, when nothing else will. Should the feces be extremely fetid, you will find it very beneficial to give *yeast*, by the mouth or by way of injection. The latter mode will correct these much, some give yeast in porter. The injection of cholrides would I think, be useful. You should attend every day to the state of the bladder. It often happens in this disease that a great accumulation takes place there, and patients might go three or four days without voiding urine, and great inconvenience may at last arise from this source. You should indulge the wishes of the patient during the progress of the disease, and afterwards, unless there be some very good reason against it.

The treatment of fever is exactly like the symptoms. You perceive the symptoms, ran from those of the most violent inflammation, the most violent excitement of the system, on the one hand, down to excessive prostration of strength on the other, and the treatment must vary in a similar manner. It may be requisite that the treatment should be of the most active anti-inflammatory kind on the one hand, or the most gentle ante-inflammatory treatment with a moderate support of the system, on the other, or even of the most supporting, and stimulating kind. Fever is not to be treated because it is *fever* but according to the circumstances of each particular case. Should you have twenty cases, you will find them more or less different from each other, and requiring more or less difference of treatment, according to the urgency of the symptoms. Recollect therefore, that in fever you have to vary the treatment, from that of an active inflammation to that which you employ in the treatment of mortification, when the mortification is attended with inflammation.

LECTURE XXXII.

REMITTENT FEVER.

REMITTENT fever resembles intermittent and continued fever, partaking of the character of each; in fact it is essentially the same as intermittent fever, arising from the same cause namely malaria. But either through a modification of the malaria, or the influence of such causes as predispose to, or excite continued fever, we have only *remissions*—not intermissions. Remittent fever is in reality continued, although remitting, having a relaxation of severity at different hours. It occurs in hot climates, and in cold climates in hot weather, thus it occurs when and where there is the largest quantity of decomposed vegetable matter; and when, there is the greatest prevalence of other causes, which are likely to excite continued fever, such as excitement and relaxation of the body, and derangement of the abdominal

organs. If remittent fever is acute, it seldom lasts more than six weeks. There is continual fever day and night, and every day, but the patient is much less hot at one time than at another, yet he has continual feverishness, he feels himself far less unwell at different intervals. Occasionally there is in addition, a regular paroxysm of ague, I have seen a person hot every day, except, perhaps, every other day, when he had a cold fit, and then the heat would become more intense, and sweating would take place, yet when the sweating terminated, there was no intermissions, but the patient was hot again. Usually there is continued feverishness with as great aggravation of it at particular periods; or if you choose to put it in another way, the symptoms of continued fever, but a relaxation of these symptoms at particular periods. But besides, I have observed continual fever with a paroxysm of ague occurring at regular intervals in the midst of it. Sometimes instead of remissions, or an aggravation of the feverish symptoms you will have the remittent nature of it shewn by occasional chilliness. I have often perceived that continued fever as it appeared, was remittent fever, by observing there was continual feverishness, heat, and thirst, yet the patient was often chilly, and on other occasions in the midst of the heat there was from time to time profuse sweats. The nature of the disease was indicated either by the occurrence of this continued fever, of chilliness, and even rigors, from time to time, or the occurrence of sweating from time to time. The accuracy of this opinion has been tested by exhibiting quinine, and by so doing, curing the patient. I believe that remittent fever shews itself occasionally in these two forms. Intermittent fever will become remittent if the causes of continued fever be superadded after intermittent has began. Now supposing a person has ague, and goes through great fatigue, or want of rest, or is exposed to wet or cold, he may be thrown into continued fever. These things alone would not produce ague, but should ague be present, the disease becomes remittent fever. The causes of continued fever are applied to a constitution labouring under intermittent fever, and then you have remittent fever. But very often the disease is produced from the very commencement. Dr. MACULLOCH supposes that intermittent fever is often a chronic affection, that it is frequently, mistaken for hypochondriasis, and that the paroxysms are not seen because they take place at night. I think that Dr. MACULLOCH is correct, for I believe that many persons have long continued remittent fever,—frequently for many months and its true nature not being detected, it is thought to be some indescribable affection. Some years since I had a patient, a man who was very frequently hot, he complained of heaviness in the head, and his mind was affected, I gave this patient five grains of the sulphate of quinine three times a day without producing any benefit, but when I increased the dose to ten grains, he became better, such cases long puzzled me, and therefore I believe Dr. MACULLOCH right. The acute disease often occurs in a violent form, with great rapidity in hot countries, there is at first delirium, and violent vomiting, with a roasting heat at the stomach, great pain and tenderness, and agonizing distress, at the epigastrium, and you have these local symptoms

soon followed by awful debility, and by all the characters of typhus. The East Indian fever, is of a bilious remittent kind, and at Bengal it arises from the overflowing of the Ganges, and the consequent fall of the waters in November and December, acted on by a high temperature, the heat produces such emanations that they cause this fever. After the appearance of these violent symptoms, a remission and a sweat occur, about fourteen hours subsequent to the attack, and the pulse from being 130 may fall down to 90, and the delirium ceases. This remission is but of short duration, the symptoms soon reappear again, and are succeeded by awful debility. Should the disease prove fatal, there is very soon no remission at all, the gastric symptoms become more violent than before, the tongue becomes black, the pulse small, and the patient sinks. When it is of this character, it generally terminates in death, between the third and seventh day, sometimes it has been known to extend to fifteen or twenty days.

This disease has appeared accompanied with other symptoms in North America, the Mediterranean, and in the West Indies. At Bordeaux, Lisbon, Rochfort in the Mediterranean, at Cadiz, Gibraltar, and Minorca, and in the south of Spain. The additional symptoms perceived in these places are yellowness of the skin, and vomiting of black matter. These variations have obtained for it the term "yellow fever." It is asserted that in America thirty six, or even seventy two hours elapse before the remission occurs. The black vomit is as much the characteristic of yellow fever as the yellowness of the skin is believed to be bile, a little altered from blood—imperfectly formed bile. There are those who consider it would be more proper to denominate it blood than bile. Indeed it is said to have been observed on the surface of the stomach, when there was not any on the duodenum, as if it had proceeded from the liver. Dr. PHYSIC says, that black vomit is tasteless, and that he put some in his eye and it did not irritate that organ, that he has found quantities of it in the stomach, when a different fluid was found both in the gall bladder, and gall ducts. It is certainly of the appearance of charred blood—of blood that has undergone alterations and is poured forth from a mucous membrane. Dr. FIFTH informs us that he procured two ounces from a patient, and that he drank it undiluted and found it perfectly innocuous. Before this he had taken a large draught of it mixed with water. He next made an extract into pills, and swallowed them with the same impunity. The fluid and concretions of melanosis is generally innocent. There are some doubts whether the yellowness of the skin is caused by the bile. It is in this disease very abundant, and may be regurgitated by violent vomiting into the veins, through the compression of the parts, and indeed, the bile is abundant in the urine. It may find its way into the veins, and more or less into the circulation, but it will produce no obstruction, at any rate if it be bile, it is not obstruction that produces regurgitation of it, for the *feces* are well tinged with bile. There is one reason for asserting that it is not bile, and that is, it will occur in patches. It is not more apparent in the eyes, and nails, than in other parts of the body, and it is not diffused equally throughout the body, as you observe in jaundice, but

it occurs in patches as ecchymoses would do, and it would rather appear to owe its origin to the alteration in the blood, to the serum with a few red particles escaping more or less into the cellular membrane. It is analogous to ecchymoses when nearly gone, and which does not arise from the bile, but from an effusion of blood, that is, afterwards in a great measure absorbed, the portion remaining giving a yellow colour. Sir GILBERT BLANE states, that this yellowness has spread from bed to bed without increasing the malignity of the disease, and when yellow fever has prevailed in the West Indies, he has observed it spread from bed to bed, and bearing no proportion to the malignity of the disease. That it appeared in the Alcides, and Royal Oak when there was but little illness. That unlike jaundice it commences usually about the parotids, there is generally fulness and flushing of the face and neck, but especially about the parotids; here there is the most blood, and here it is that the yellowness appears in the most marked manner. This disease or "causos icterodes" as some term it, is evidently another form of bilious remittent fever, and it occurs only in countries where the heat is such as would arrest and destroy the plague; and it occurs in hot seasons, such as would destroy contagious typhus fever when that is prevailing. Yellow fever, or bilious remittent fever are always extinguished by cold weather. The black population are usually less violently affected than the white; but should they go into a cold country and reside there for some time, and then return again to America, they suffer equally with the white population. Those who are accustomed to a high temperature suffer the most. Black people coming from hot countries, or being descended from parents born in hot climates suffer less, but if they reside in hot climates, their constitution partakes in some degree of that of the whites, and then they suffer far more than others of the black tribes. This disease generally occurs only in the tropics, and in other places where the temperature is as high as in the torrid zone. Very intense heat in cold climates has occasionally produced the affection. Sir JOHN PRINGLE states that he has sometimes seen yellowness of the skin in Flanders. Dr. BROCKLESBY saw it in 1758 in the Isle of Wight. In 1743 Dr. HOME perceived it at Worms in Germany. All those places which are subject to this species of fever have a quantity of wet dead stagnant vegetable matter. It prevails in the West India Islands, in Charlestown, Norfolk, Providence, Philadelphia, New York, Baltimore, and Boston. It occurred at Lisbon previously to the earthquake. It occurs at Seville, Bordeaux, Rochfort, and Gibraltar. The latter Island is situated high, but although elevated in reference to the sea, yet the town is low in reference to the mountains. The rain runs off 4,000 acres, streams towards the town, carrying in its course a quantity of vegetable matter as well as vegetable rubbish from the markets. Some say that straw has caused this disease. The rocky soil by causing the water to remain stationary increases the injury.

Although it has been supposed that yellow fever is produced by malaria, yet Mr. VINES a planter and "physicker" in the West Indies, ascribes it to the Lord's heavy wrath (laughter) and not to

any thing in the climate. The Island of Barbadoes was not cleared for a long time after he wrote, and the disease prevailed to a much greater extent than it does now. ARMESTA, a Spanish officer, ascribed the disease to local situation, and atmospheric causes, but he was compelled to retract his opinion, for so violent was the public feeling against his doctrine, that 1500 copies of his work on this subject were burnt. But in 1800 the Government held a very different opinion and ascribed it to the right cause, to *misamata*. There are great differences in opinion relative to the contagiousness of yellow fever. Dr. FIRTH has tasted the black vomit, and has frequently inoculated himself with it, and also with serum, and saliva, but without any injury being produced. Some say that it is never propagated one mile from Philadelphia, consequently it must owe its origin to local causes. Dr. RUSH once maintained the opinion of its being contagious, but he retracted it and publicly acknowledged his error. The mode in which a false belief in contagion does injury, is, in preventing the healthy from an attendance on the sick, stopping commerce, and by permitting patients to remain in the unhealthy situation which has induced the affection. In the East Indies it is never considered contagious, but in the West Indies it is considered contagious by a great number. The Gibraltar fever has given rise to a variety of opinions. Dr. STEVENS states that he thinks he has discovered the cause of these discrepancies in opinion. He asserts there are three distinct yellow fevers in the western world, there is one in which there is no contagion, which is a climate fever, arising simply from excessive heat, that it attacks new settlers who are operated upon violently by the intensity of the temperature, that great bilious symptoms arise—that there is the remittent fever, the yellow fever, arising from the local cause malaria, and heat combined—that there is a yellow typhus fever—a contagious fever, which he has been enabled to trace to the negroes in America, who have come from Africa. That all these three fevers are attended with yellowness of the skin, that the symptoms are all different at first, but after a long time they are all the same; and although the general treatment of the whole is the same yet, that in their minutiae they all differ, they all require a modification of treatment.

On this subject I give no opinion, I should think it probable it is the case, that there are two or three different kinds of fever, but the intensity of the heat occasions them all to be distinguished by great yellowness of the skin, some by a depraved condition of the blood poured forth under the skin, and others by jaundice, I believe that the greatest authorities in America are confident that the yellow fever as it prevails there, is, for the most part, *not* contagious, but that it is occasionally so, Dr. STEVENS mentioned to me an instance of yellow fever occurring in a family situated a great distance across the sea, from any place where the disease had prevailed. A captain of a vessel was in a port where yellow fever prevailed, and being constantly amongst the inhabitants, his clothes and linen were impregnated with it, and he left the place. I am not aware that he had the

disease himself. But when he left he cheated the quarantine, and went to another place where no fever had prevailed, with his linen unwashed, which was taken out by his family in this place, and in a very short time one died; then another. Two of the sisters and the servants who washed the linen, and an old woman who resided in another part, but who came to assist them was seized with the disease. It spread from house to house all through the town, and committed frightful devastation. Dr. STEVENS said that he knew this was the contagious form which he termed "African typhus." Dr. STEVENS has published his facts and observations to which I refer you. The latent period of this yellow fever is considered to be from two to ten days.

TREATMENT.

The best authors agree, that there should be copious venesection in the first instance, whether it be the fever of the western hemisphere, or the mere bilious remittent of the east, cold effusion is always beneficial, or cold ablution. The utmost attention should be directed to any local inflammation that may occur, and local bleeding may be necessary. You cannot employ emetics if there is any tenderness on pressure of the epigastrium. In the first commencement, mercury is found beneficial; but not afterwards. When you have symptoms of violent inflammation, it may be very useful; but yet a patient may die with a sore mouth if it be exhibited too late, or a proper degree of bleeding is not resorted to. Moderate purging is requisite, but as soon as the remission occurs; sulphate of quinine should be administered in great abundance. Dr. STEVENS states, that when the symptoms of typhus come on after venesection, and mercury and cold affusion have been freely resorted to, no time should be wasted; but that you should pour in neutral salts,—that where there has been great mortality, it has been lessened to almost nothing by practitioners taking his advice. By giving carbonate of soda, the oxmuriate of potass, and common salt, every hour during the disease, the beneficial effect has been very great; and much beyond what one could have reasonably expected. In the East Indies, the sun and moon appear to have a great influence on these fevers. Dr. BALFOUR has written a work on what he terms the *solunar influence*, and he proves that at new and full moon, bilious remittent fever is most easily imbibed, that at new and full moon the intensity is greatest, and those who are suffering from pernicious fever which has destroyed the constitution, are particularly affected at this time. I have seen medical men who have practised in the East Indies, and they assert, that it is well for us here not to believe this, but they have suffered enough to convince them that it is true. I do not suppose it is to be ascribed to the direct influence of the sun or moon upon the body, but that it arises from the operation of these on the tides. The new and full moon with regard to the elevation of the water, may have a very great effect, and that again may have an effect, by causing malaria more or less to be disengaged; so that the atmosphere is more impregnated with it at those periods than at others. There can be no doubt that at the new full moon in the East Indies, fevers are most prevalent, relapse is most common,

fevers are more intense, and those who have suffered most, feel a strange sensation about them, just as we find here when the east wind blows on a person who has had ague. Those epidemics described by ancient writers as plagues, and pestilences, were nothing more than fevers of a remittent character.

LECTURE XXXIII.

CUTANEOUS DISEASES.

WE have hitherto considered those diseases which attack various parts of the body—inflammatory and diseases of structure, and we have grouped them under the name of *general* diseases. We have also spoken of *universal* diseases, affections, namely, which seem to involve every part and organ of the body.

From *universals* we come to *particulars*; and *a capite ad calcem*, from the head to the foot—for I think this mode of treating our subject equal or even superior to an alphabetical arrangement. But before the head we must consider the skin; first the exterior of the body, then the interior. Affections of the surface of the body are commonly called cutaneous, and they are very numerous, more so than would appear from WILLAN and BATEMAN. WILLAN and BATEMAN, and GALL and SPURZHEIM, master and pupil in each case, are commonly confounded together. This is a great mistake. The masters ought to have all the praise of originality, the pupils only that of having carried out, and perhaps improved their master's views. RAYER, a French writer, is the best author on cutaneous diseases. His views are more enlarged than BATEMAN's—he goes farther than BATEMAN, though, as far as the latter goes, he is equal to RAYER, so that I do not undervalue the work of BATEMAN. RAYER treats of more affections of the skin than BATEMAN, and includes also those of its appendages. RAYER followed BATEMAN, and adopted his arrangement. His treatment as well as his description is much superior to BATEMAN's.

RAYER's divisions are: (1) Diseases of the skin; (2) of the appendages of the skin; viz. the nails, hair, &c. This division includes whitlow, plica polonica, &c. &c.; (3) Animate and inanimate foreign bodies which frequently adhere to the skin. Lice and fleas are examples of *animate*: the scurf on the head of infants, of *inanimate*. (4) Disease implicating the skin in their progress, as elephantiasis. This is a highly scientific view of the subject.

Subdivisions—(1) of disease of the skin; (a) inflammatory; (b) congestive and hæmorrhagic; (c) nervous, such as too acute or impaired sensibility; (d) changes of colour, not from congestion; (e) morbid secretion; (f) structural. This is a much more useful arrangement than WILLAN's. His work is a natural history of these diseases rather than their pathology. It is excellent for the descriptions of disease, but not for deeper matters. Here RAYER is

superior; and knowledge always proceeds thus:—first, the external appearance of things is studied: then, their nature and causes. WILLAN did much, and has been of great assistance to RAYER. But, without depreciating the value of his labours, we ought to look for improvement on him.

(a) First for inflammatory diseases, and afterwards, in their turn for the other subdivisions of the first division. Affections of the skin, are to be viewed, very frequently, only as symptomatic of some other disease. This is very important. The mucous membranes are very often affected simultaneously with the skin. This happens in measles and small-pox. Purpura, too, though called a cutaneous disease, has, in reality, its seat in the lungs, liver, intestines, or head. The intestines, &c. have numerous black patches, whilst the head sometimes exhibits an effusion large enough to have induced apoplexy. In measles, again, the conjunctiva, and the mucous membranes of the nose, mouth, throat, gastric and pulmonary organs are attacked, equally with the skin, with inflammation. In some diseases, the eruption on the skin is preceded by some internal derangement, which is sometimes relieved by the eruption, sometimes not. In many there is an internal derangement at a certain time during the affection of the skin. Some cutaneous diseases are accompanied by general inflammatory excitement of the system; others, by general debility. Therefore you must remember that many are rather diseases of the system than of the skin, though said to be of the skin. Some on the other hand, are truly local, such as *Pityriasis versicolor*, and disease of the nails and sebaceous follicles. These are to be viewed as seated entirely in the surface of the body.

RAYER arranges these inflammatory affections of the skin in much the same manner as WILLAN. Some have extensive, other minute inflammation. Some produce water, others pus. Some have a scaly, others a tubercular appearance.

WILLAN's arrangement, is (1) into diseases with pimples not containing any fluid—*papulae*; (2) scales—*squamae*; (3) diffused, irregular red patches—*exanthemata*; (4) water—*bullae*; (5) pus—*pustulae*; (6) vesicles—*vesiculae*; (7) tubercles—*tubercula*; and (8) stains or spots—*maculae*. Now, according to RAYER, several of these come under his class of inflammatory diseases.

RAYER arranges them as follows:—patches of inflammation—*exanthemata*; collections of water—*bullae*; very small quantity of water—*vesiculae*; suppuration—*pustulae*; a large quantity of pus—*furunculi*; spots of inflammation (not patches)—*papulae*; tubercles—*tubercula*; scales—*squamae*; next, *linear inflammation*. And lastly, *gangrenosi*, plague and malignant pustule, and a class called *S. multififormi*, in which he places syphilis, and all those not comprised under the other designations.

The most simple way is to view these inflammatory diseases as minute (or *papulae*); then when in larger patches (as *exanthemata*) then *vesiculae*; then *bullae*; then *pustulae*; then *furunculi*, or *boils*; then *gangrenosi*. Then organic disease of the slight kind—only of the *tutis*, as in scaly diseases; then of a more deep kind,

as *tubercula*; and thus going from less to greater affections, we shall have a more natural mode than that which RAYER has followed.

PAPULÆ.

We now proceed to speak of those which produce no secretion whatever,—of pimples or papulæ. In strict language a papula is defined to be, “a minute inflammation of the skin (cutis and cuticle) with a very small acuminate elevation; not containing fluid nor tending to suppuration, but generally terminating in scurf.” The duration and number of the pimples are uncertain, but they generally form scurf. Minute inflammation, then, may have no secretion—papulæ; may have a small quantity of water—vesiculæ; or of pus—pustulæ. Scurf is an exfoliation of the cuticle produced by a very minute inflammation, even what must be termed irritation. A new cuticle is formed, without moisture or rawness, under the exfoliation.

Dr. WILLAN says, that *papulæ* are inflammation of the *papillæ* of the skin, which are enlarged, elevated, and indurated, and of a redder hue than natural. Therefore we have said, in our definition, that they are acuminate elevations of the cutis and cuticle—the latter stretched over the former. They are attended with what may be termed a painful itching. They terminate either in small scales, or scurf, or in a large patches of dead skin, called *desquamation*. Rubbing or otherwise irritating them will cause them to secrete water, and thus to become true vesiculæ;—if carried further, the irritation will produce pus; i. e. pustulæ. If very great irritation be given by scratching, &c., the natural termination of the disease will be altogether changed, and boils, or furunculi, will be the consequence. Papulæ are not contagious.

There are two or three kinds of them. Dr. WILLAN says three; I think only two, and that lichen of adults, and strophulus of infants are the same disease. It would be better in my opinion to merge these two names into one—and the sooner the better. The other kind is prurigo, so called from its great itching; and, indeed, it is often confounded with itch.

Strophulus, or red gum, is peculiar to infants. It is a very trifling disease, and depends on some irritation of the abdomen, gums, &c., and is often called the “tooth rash.” It is divided into red and white. It attacks indifferently all parts of the body, but perhaps more frequently the face and extremities. It is intermittent, i. e. comes and goes, and is altogether free from danger, being easily removed by a dose or two of physic. Often it will spontaneously subside on the removal of the exciting cause.

Authors have enumerated numerous varieties of this affection. But they are altogether useless in practice, and cannot be retained in the memory. They will be best learned by seeing them as they occur in practice, but they make no difference in the treatment. I shall merely give you the names of them, some of which I shall forget as soon as I have concluded this lecture. They are *S. intertinctus*, *S. albidus*, *S. confertus*, *S. volaticus*, and *S. candidus*. Remember that you will meet with varieties in practice, and you will

then burthen your memory with all that you require. They are all very well shown by WILLAN and BATEMAN in their 4to. plates, 1, 2, and 3. You will sometimes see all the varieties I have enumerated in a single patient, but *S. confertus*, is the only variety which can ever become severe. The papulæ may then be very numerous, hard, and extensive. They usually exfoliate in about ten days, or a fortnight. They will continue, in some instances, spreading, cracking, and exfoliating, particularly in children seven or eight months old, until the first teeth have all appeared.

I have already said that any little abdominal, or other irritation, such as teething, will produce it, and to this we may add exposure to cold and damp.

The best treatment, in all the varieties, is to give some mild absorbent, and antacid purgative, as there is usually a slight degree of acidity present. The liq. potassæ, carbonate of soda, or of magnesia, with a little rhubarb, two or three times a day, answers pretty well. The warm bath also is of service. In chronic cases, hydr. cum creta, the mildest form of mercury, may be given. The diet must be attended to. It should be good and nutritious. If, on a sudden retrocession of the papulæ, the child should appear weak, a little ammonia should be given two or three times a day. The warm bath and perhaps the warm air bath will be found serviceable in diseases of the skin, as we can thus bring out an eruption when we wish. If much inflammatory action be present, you will give stronger purgatives, and if required, apply leeches. Tonics, as iron or quinine, with generous diet, will, of course, be required when the disease is one of debility. You may have both states of the system in various degrees of intensity, and you must treat them accordingly. But, in general, a warm bath, with alkaline and aperient medicines will succeed. The child should be well protected from cold, as cold might induce internal inflammation. The warm bath will be useful in this case, but antiphlogistic means must also be had recourse to. But this will not happen in many instances, as, generally speaking, the disease, is free from danger. We proceed now to speak of

LICHEN.

This is strophulus in adults, and ought to have the same name. RAYER is of the same opinion—and says that he treats of them separately to avoid confusion, and because WILLAN has done so. It would, however, save the memory one disease the less, together with its corresponding set of names. As in children, it attacks, for the most part, the extremities, and particularly the anterior and posterior parts. It terminates in scurf, and may be acute, chronic, general, partial, symptomatic, &c. The species are *L. simplex*, *L. pilaris*, *L. circumscriptus*, and a very severe form, *L. agrius*. In this last the papulæ are large, clustered, and of a deep red from inflammation of the skin. See RAYER: plate 6, division 1.

There is nothing dangerous in this disease, but sometimes unpleasant head ache and feverishness. *L. pilaris* sometimes becomes chronic. *L. agrius* is attended with much heat and itching. It may

even have vesicles and excoriations. This form is most commonly met with in women.

Lichen varies in its duration from ten days to several weeks. I should regard *L. agrius* and *strophulus confertus* as the same disease. It is sometimes connected with *impetigo*, a pustular disease; with eczema, a serous exudation; and with psoriasis, a scaly disease, and it may run into them. *L. lividus* is marked by purple papule; sometimes we see petechiæ from congestion. *L. tropicus*, or prickly heat, is a very distressing affection, met with in hot climates. Going to bed or taking brisk exercise will, in a person subject to it, bring it on. It usually co-exists with a good state of the general health, but its sudden repulsion generally indicates some internal affection. *L. urticatus* is common in spring and autumn, and consists of papule with weals or bumps, like gnat or bug bites about the neck, face, and hands. It is *strophulus candidus*.

The general symptoms of the attending fever, when present, will sometimes disappear on the appearance of the eruption, sometimes not. Lichen is common at the end of fever and catarrh, and, perhaps, after peritonitis. Some people have it in summer or autumn every year. The Romans called it *Sudamina*; the Greeks, *Idpwa*.

The treatment is, allowing for the difference of age &c., exactly the same as in *strophulus*. For leeches, if required, bleed from the arm. For the mild laxatives, substitute brisk purgatives. Use the warm bath (not the *hot*.) If the disease be at all severe, bleed—particularly if the pulse, constitution, &c. warrant it.

The chlorides of soda and lime, as local applications, relieve the itching better than any other application. Vinegar is often used, but it is inferior to the chlorides, particularly if the skin is sound. Prussic acid, too, is of service,—a drachm to eight ounces of water. This succeeded in a case at St. Thomas's hospital. It should be begun weak, and the strength increased. Thus, then, bleeding, low diet, and purging, are the best general means; and vinegar, prussic acid, the chlorides, or plain water, sometimes warm, sometimes cold, answer best as topical applications. Prussic acid, if too strong, will sometimes induce heat and dryness of the skin.

LECTURE XXXIV.

CUTANEOUS DISEASES.

THOUGH there are really but two papular diseases, viz. lichen and prurigo, yet, as I told you in my last lecture, Dr. WILLAN makes three,—adding *strophulus*—none of these are contagious. The skin is but slightly altered from its natural hue in prurigo, (which takes its name from the itching which attends it) the spots, however, are larger than in lichen. Except *L. tropicus*, the itching is not much noticed in any of the lichen species, but in prurigo it is a more striking symptom than the eruption. We distinguish the form of lichen which I have mentioned, by the eruption being very severe, whilst in prurigo, it is often very slight. It is, I wish you to remember, by the

intense itching that we recognise prurigo. It is usually a long, chronic disease. Lichen and strophulus are sometimes acute, sometimes chronic, but prurigo is always a troublesome disease, unless properly combated in an early stage. As I mentioned in my last lecture, by scratching, and thus exciting fresh irritation, the patient may convert this, as other papulous diseases, into a vesicular; and by carrying the irritation further, he may cause purulent matter to exude from under a cracked, chickened, and scabby skin.

There are several species of this disease, prurigo. When mild it is called *P. mitis*. This, for the most part, is met with in spring or summer, and generally in young patients. Prurigo generally, however, attacks all ages. Some think *P. mitis* degenerates, if neglected, into itch; others think not. There may be intense itching with an almost invisible eruption, or we may find the eruption out at one visit and that it has receded at our next. Thus we may say that it intermits, or at least remits. The next variety is *P. formicans*, so called from the smarting itching, resembling the bite of an ant. This is a most distressing form of the disease. We find it in adults, and principally in old people, which has caused some difficulty in distinguishing it from *P. Senilis*. Sometimes the general health suffers; I mean that we have head-ache, lassitude, &c. These forms do not attack children, nor are they ever seen in the palm of the hand, or the soles of the feet. Perhaps it would be better to say, that when severe, and when it attacks old people, we called it *P. senilis*, and that thus they are the same disease. The plates, as you see, show no scales, no scabs, &c. Although we cannot say that life is shortened by either of these forms of prurigo, yet, if very severe, (when it is really a *dreadful* disease) it may, by long continued irritation, injure both the body and mind. Indeed, I have known instances of this, both in hospital and private practices. Itching, when continued for months, and as sometimes happens, for years together, will fairly wear out the mind and utterly exhaust the spirit;—inducing a sort of fatuity. I remember a case in St. Thomas's hospital; a man came to me with prurigo of nearly three years duration. He showed me a comb, which he said was the second he had bought, having fairly worn out the other by scratching himself, and I believe that he might have done so. Sometime after this, I saw another man who had suffered as much as the first. His mind was gone, as in the first case;—both being completely childish. Sometimes it is confined to one part of the body; to the scrotum, for instance, in the male, or to the prepuce (in which case it is called *P. preputii*), or to the pudendum in the female. If in the urethra, it is called *P. urethralis*; if in the rectum, *P. podicis*. By constant scratching, the skin of the part becomes hardened, thickened, and scaly. By far the worst form of all is the *P. pudendum*. The itching in this so great as wholly to debar the sufferer from mingling in society, as she finds it impossible to refrain from scratching herself for five minutes together. Sometimes it almost drives the women mad. I knew one who had, for months, been obliged to rise several times in the night, and bathe herself with cold water. In these chronic cases, the vagina becomes indurated,

and studded with tuberculous looking knobs; and a morbid desire of coition is set up. From this, partial temporary relief is obtained, followed by aggravation of all the symptoms. When this happens, or indeed the disease at all to modest women, it is impossible to imagine any thing more distressing. It frequently induces them to wish for death, or indeed any means of relief. It is not often seen in young women. According to Dr. WILLAN, it is common about the fourth month of pregnancy. He says, too, that there is a form of aphthæ which may appear in the labia, &c. and which may be communicated to the glans and prepuce of men, but that it is easily cured. When I speak of itch, I will tell you how to distinguish it from prurigo; this last, however, will sometimes be seen in the face, whilst itch will not; prurigo, too, is not a contagious disease.

In the treatment of mild prurigo, the patient must give up the use of wine, beer, pepper, mustard, in fact, of every stimulus. If I take pepper or vinegar, even in very small quantities, it immediately excites violent itching in the scalp. Opium will give me an itching in the nose for many hours afterwards. To correct avidity, give alkalies; purge, and, if necessary, bleed. Colchicum, however, is by far the best remedy for this disease, not in the mild form only, but even in the case of one of the men of whom I have already spoken, it cured him so far, that he would not remain any longer in the hospital. Give the colchicum to purge, and you will generally relieve more than with any other medicine. Of course, amongst stimulants we class heat, whether from the fire or from brisk exercise. These, therefore, must be avoided. For the itching, you will often relieve it by diluted acid, or by the chlorides of lime or soda. The woman who was so bad, found great relief for a time from prussic acid, but ultimately she used it so strong as to cause fainting and giddiness. At last, she had a pail of cold water in her room, and this she used incessantly. Worms in the rectum will induce *P. podicis*, stone in the bladder will sometimes cause *P. preputii*, and some organic affections of the uterus are attended by *P. pudendi*. If you can find any such local cause, it will be well, as on its removal, the itching will cease. I have been told that the yellow wash will give relief, but I think this is much the same as the chloride of lime. In France they use sulphureous baths, and emollient baths containing gelatine, but I know not with what effect.

EXANTHEMATA.

In these diseases, the redness does not merely form spots, but patches;—or, in English, *rashes*. Dr. WILLAN defines the exanthemata thus: “red patches, variously figured, in general running together, confluent, and diffused irregularly over the body, leaving interstices of a natural colour, and terminating usually in cuticular exfoliations, though sometimes disappearing without any such exfoliation.” The papulæ end either in pure resolution, or in a scurf; now, these patches, being larger than the papulæ, terminate in exfoliations of the cuticle in pieces of considerable size,—not in branny or scurfy particles. The surface, in exanthemata, is often uneven,

as the portions affected are higher than the rest. They vary in colour, and, according to WILLAN, extravasation sometimes occurs. I shall consider the class exanthemata thus:—1st., erythema and roseola, uniting them as I did lichen and strophulus; 2dly., measles; 3dly., scarlatina; and 4thly., urticaria. Measles and scarlatina (which usually occur but once in life) are contagious; the others, together with all the class papulæ, are not.

Roseola is worth knowing, to be able to distinguish it from any other disease. In itself, it is very simple, and not of much importance. Roseola consists of little circular or oval red patches, without elevations, or papulæ. It is most common with children. Sometimes it has an itching, at others, only a tingling attending it. It may attack any or all parts of the body, the patches being frequently of all sizes. If quite round, it is called *R. annulata*. It seldom gives much trouble; generally going off spontaneously in four or five days. If mistaken for scarlatina, the diagnosis, according to RAYER, is easy. On pressing a patch with the finger, the redness returns, in scarlatina, from the circumference of the part made white, but in roseola, from *all parts* of it. It is seldom followed by exfoliation. It may, in some rare instances, become chronic, or at least one attack may follow another so quickly, as to make it seem intermittent. Sometimes, in the spring and summer, it may depend on heat, but at others, it seems to have no obvious cause. It may be called *R. æstiva*, or *R. autumnalis*. If it occurs in small-pox, it is *R. variolosa*; if in cow-pock, *V. vaccina*. It is seen in gout, in continued fever, in rheumatism; sometimes, too, the mucous membrane of the throat, particularly of the pharynx, is attacked by it; and even the stomach and intestines have something analogous to it; at least, in roseola there is often present great heat in different parts of the abdomen. In cow-pock, we usually see roseola on or about the eighth or ninth day; in inoculated small-pox, it is sometimes seen (once in about fourteen or fifteen times) before the pustules appear, and, if not deep and intense, it is usually thought to indicate a favourable and simple disease. If, however, it is deep and extensively spread, together with much pyrexia and general disturbance of the system, confluence of the pustules used to be dreaded. The treatment consists in lowering the child's diet, or in giving a little mild physic. By knowing how to distinguish this disease, you will be able to put a proper value on histories of children, who are said to have had measles, or scarlet fever, perhaps a dozen times. You will find delineations of roseola in WILLAN's plates, 25, 26, and 27.

ERYTHEMA.

Notwithstanding what authors assert, it is quite impossible to distinguish this disease from the last. There is more dissimilarity between some of the kinds of erythema, than there is between them and roseola. It may last but a few days, and then it goes off with a branny desquamation. It may be local, and arise from friction; this is *E. interirigo*. It is principally found in the arm-pits, or groin.

It may, when very slight, be termed *E. fugax*. If the skin continue smooth, it is *E. læve*. With a distinct margin, it has the name of *E. marginatum*. If it have papulae, *E. papulatum*; if tubercles, *E. tuberculatum*. Erythema nodosum has large bumps on the legs. The red shining of an oedematous leg is called *E. læve*.

Sometimes there is a little ailment of the system before the eruption appears. Sometimes there is none through the whole course of the disease. RAYER thinks that it arises from a disordered stomach, and denies that it has power to derange the constitution. In people not in good health, there is sometimes an eruption without any contents, and this is called erythema.

Erythema nodosum, however, is often a very severe complaint, appearing in patches on the legs, and for the most part, in females. —See pl. xxxii. fig. 1. It is a very common complaint, and, if not properly treated at first, it may become very troublesome. Sometimes, as in pl. xxxi., we meet with tubercles. You should know this affection, as I have seen patients die *with* this disease,—I will not say of it.

To go over the treatment of this disease in detail, would be useless. It is the same as that of the other inflammatory skin affections. If you bleed, you will find the blood inflammatory. Keep the patient entirely on the anti-phlogistic plan. If you keep him, too, in a horizontal position, you will be more likely to remove any oedema which may be present. If the patient be a female, you will derive much benefit from bleeding, purging, &c., and more particularly from colchicum. Never neglect this medicine; it is far superior to the common cathartics. I have seen but one case of *E. tuberculatum*, and then I mistook it for *E. nodosum*. The patient, however, after the eruption had disappeared, became paralytic, then hectic, and then died in a very curious manner.

Thus *E. nodosum* is innocent, whilst *E. tuberculatum* would seem, particularly as Dr. WILLAN had but three of it, and lost them all, to be a serious disease. Dr. BATEMAN never met with it. I should give colchicum, and bleed for it, but I do not know whether it does not depend on an exceedingly bad constitution, and whether it must not be looked on only as symptomatic of some internal affection. When you see tubercles, therefore, do not be surprised at a fatal termination. You may call the other red, bumpy patches, either roseola or erythema, as you please, for they are of no importance whatever.

LECTURE XXXV.

CUTANEOUS DISEASES.—URTICARIA.

THIS, like those we have hitherto considered, is a disease without danger; neither is it a contagious disease. Its English name,—nettle rash,—is very descriptive of its leading symptoms and appearances. We find extensive patches (efflorescences,) with *wheals*. Dr. WILLAN describes a *wheal* as “a longitudinal or rounded elevation

of the cuticle;" but, in my opinion, of the whole skins; but "not permanent, nor containing fluid, not bending to suppuration." Now, if the cuticle only were raised it must have water or blood, or pus in it; therefore, I say the whole skin. The cuticle, then, the cellular membrane, and the cutis, are all raised, and around the lump you will find an extended inflammatory efflorescence, of a most vivid, a most intense red; much like, in some instances, what are called claret stains. This efflorescence gives the character to the disease, the wheals being sometimes absent; generally speaking, however they are present. The whole appearance both to the patient and the bystander is that of a part stung by nettles. The itching, too, closely resembles it. Hence its name.

If the bumps are very hard and large, we have *U. tuberosa*. You would say that any case with hard, large, and painful bumps is *U. tuberosa*. You will generally meet with them in the loins and legs. They are worst at night, receding in the morning. When the patches are numerous and clustered, we call it *U. conferta*. You will meet with this form in people with dry, swarthy skins, and who are about middle aged. When feverishness, head-ache, &c., have either preceded or accompanied it, it gets the name of *U. fibrilis*. But, in truth, most forms of the disease, have more or less febrile action, together with considerable languor. In severe cases, you have heat, thirst, loaded tongue, quick pulse, &c. &c. Sometimes a full eruption will relieve the internal symptoms, and, in these cases, its recession is attended with an aggravation of them. Very often, however, we meet with both the eruption and the febrile symptoms combined. The skin is very often greatly swollen, the eyes being almost closed, and the lips, cheeks, &c., being enormously distended. The eruption is by no means constant in its seat, as it may change several times in the day. Heat will bring out a thick crop, so, too, will cold. Undressing, by chilling the surface, and standing by the fire, will equally aggravate it; of course all stimuli, including rubbing and scratching, will do the same. Like roseola, urticaria often affects the mucous and submucous cellular membranes, of the tongue, fauces, &c., which you frequently see swollen like the face. It is said, too, (though I have never seen it) that stranguary and diarrhoea are induced by it. I have, however, seen much trouble and pain in swallowing from the enlargement of the tongue, &c. Patients have died *with* urticaria, but not *of* it. Like erythema *tuberculatum*, it seems to occur sometimes in bad constitutions, and is then complicated with other affections. It generally lasts from a few days, to a fortnight. Sometimes there is a slight scurf, sometimes there is not.

When it becomes chronic, it is called *U. perstans*. This, however, does not often happen; perhaps, the redness *never* remains. It may however appear and disappear for months together; it is then denominated *U. exanida*. Sometimes it does not fairly appear, but lies under the skin, and teazes the patient sadly; this is *U. subcutanea*. It is well worth your attention to study the diagnosis of this disease, (urticaria in general) as it is often called anything but urti-

caria, and the patient is frequently thought to be labouring under some more severe affection. Pl. xxiv. fig. 1 and 2, show both forms of the disease. The wheals are slight, in one there is but little inflammation, in the other, it is very vivid, being almost damask. When the redness exists with but few wheals, urticaria is often mistaken for erysipelas, and, if swelling of the face exist, the patient is sometimes much alarmed. In children, when it does occur, you may, perhaps, find more difficulty in the diagnosis, than in adults. It may be confounded with measles, &c., as well as with erysipelas. Cold, applied to the body when heated, is the usual source of urticaria; more particularly if combined with moisture. Heat, mental emotions, teething, the skins of almonds, sometimes hydrocyanic acid, mushrooms, herrings, and, in many instances shell-fish, particularly muscles, will produce urticaria. There are many curious circumstances connected with muscles producing it. Some people have it invariably after eating, let it be ever so small a quantity of them. Nay, one woman had urticaria indeed by drinking a tea spoonful of the water in which some had been boiled. From the rash being attended by a good deal of swelling, people are said to have been poisoned after eating muscles. Poisoning is far too fine a name for it. Malt-liquor, vinegar, spirits, as gin or brandy, and, in the case of the wife of a medical man, even common gruel have been known to induce it. Copaiba will often produce it; so also will sulphate of quinine, and any form of opium. Opium gives me itching in the nose. In one case ferri subcarb; seemed to induce it; and that, too, in a severe form. Copaiba is, as I have said, a common excitant of it. Some agents applied to the skin will bring it on. Dr. WILLAN relates a case of one application of ungt. hydr. having done so, and another from rubbing the hands with oatmeal. It may appear not only on the part to which the stimulus has been applied but may attack all other parts of the body. Croton oil will often induce something analogous. Tartar emetic, rubbed on the legs, sometimes affect the genitals.

In the treatment, if required and the strength can bear it, take away some blood. From whatever cause it may arise, bleeding is the quickest remedy;—indeed the relief is almost immediate. The swelling will often be seen to go down even before you cease drawing the blood. A purge given at the same time will assist the bleeding; of course, it will be right, when the symptoms have been induced by something taken into the stomach, to dislodge it by an emetic. You will, however, find the lancet the shortest method, perhaps it will cure in one twentieth part of the time required by diet and purgatives alone. Of course, to the bleeding, you will add low diet, as well as purgatives. Of course, too, you will, before bleeding to any extent, look at the constitution of your patient. Should the disease become chronic, the patient must avoid stimulants of every kind; such as improper diet, too much exercise, violent mental emotions, &c. In these cases, particularly if you have a full pulse, bleed moderately, use the warm bath, and you may give bark and acid. Generally, however, you will find bleeding, with low diet, cure the dis-

case. The bleeding is a remedy which I have long adopted, and to which I now trust in every case where the pulse will bear it. If, in the chronic form, any local or other affection such as gastritis or enteritis, be present, you must remove it. The troublesome itching is best relieved by prussic or nitric acid, and by the chlorides.

RUBEOLA, OR MORBILLI.

This is a severe, contagious, and often fatal disease. Morbilli is from the Italian, signifying a lesser kind of plague, or, literally, *the little disease*. Formerly, measles and scarlet fever were confounded under the same term. SAUVAGES first restricted it to measles. Almost every one will take this disease, once in his life; any exception to this is very rare,—more so than the exceptions to small-pox. It is principally met with in children, and with them is more fatal than in adults. Like scarlatina and small-pox, it may occur twice to the same person, but this is rare. Hooping-cough, you will remember, has been heard at birth, so also has measles. Small-pox is sufficiently common at birth. Usually measles is epidemic; that is to say, a number of persons are affected with it in a given spot. Generally, in the case of measles, this happens in winter and spring.

There is, or ought to be, but little difficulty in making out this disease. Inflamed eyes, sore throat, sneezing, running from the nose, head-ache, and, lastly, a cough peculiar to this disease, are the symptoms by which you will recognize it. Generally, you will see the eruption on the fourth day. CULLEN says “(Quarto die, vel paulo serius,)” but sometimes at various dates from the second day to the twentieth. It begins on the forehead, spreading over the face; in a few more hours, you will find it spreading over the trunk and extremities, and on the fifth day it will have covered the body. It is then vivid in the face. On the sixth day, it becomes pale on the face, but is vivid on the body, and on the seventh day it begins to decline on the body. It may be said to be a seven day disease;—three of eruption, four of preparation. But, as I have already said, the catarrh may last for two or three weeks, and then, all at once, perhaps without any change, the eruption may appear. Sometimes, too, the ends of the extremities may not present patches, before the sixth or seventh day. On the ninth day, we find the vividness quite gone, and the skin of a light brown colour. Desquamation will then begin.

At first, the papulæ look like flea-bites, and are very small red dots. However they increase in number, and cluster forming patches. All the exanthemata begin and extend in this way. These patches have no determinate form, unless, indeed, they put on a semicircular appearance. In the midst of these patches, you will find red circular spots, and around the spots the skin is of a natural colour. All this is best seen in the face, from the greater number of blood-vessels. The patches are there more numerous, so that there is an inequality perceptible to the touch. If severe, you may sometimes feel this in other parts of the body. When very severe, the face may be much swollen, and you may have little collection of water, termed

miliary vesicles. You may have, too, small papulæ in the patches, raised higher than the patches themselves. When a child has the catarrhal symptoms, and patches as represented in pl. xix, it is measles. The hands, arms, &c., may not be decisive, but the face is. It has been mistaken for small-pox, when it turns out measles. This, of course, will injure the practitioner's reputation.

The catarrh will usually continue unabated after the eruption has appeared. This is not what authors usually assert, but it is true. No doubt in some cases, the coughing, &c. will be better, but not generally; indeed, they are not unfrequently aggravated. The bronchiæ are probably the principal seat of the pulmonary affection, indeed after the eruption has appeared you may have bronchitis, peripneumonia, or pleuritis. You will, too, frequently loose your patient from these inflammations becoming chronic and perhaps terminating in phthisis. An inflammatory diarrhœa too, will often be left; perhaps you may see chronic ophthalmia; otorrhœa, with deafness; mesenteric disease; together with some obstinate cutaneous affection; in fact, measles will leave behind almost every form of disease. These are the *sequelæ* of measles—after a sudden recession of the eruption, you may have inflammation of the brain, bowels, or lungs; but usually of the last.

We must not take it for granted, that the recession causes the internal symptoms; the aggravation of the latter may, for all we know, be the cause of the former. The sudden recession, too, is by no means always followed by visceral aggravation.

TREATMENT.

In mild cases, antiphlogistic regimen, with gentle purging, will be sufficient. Do not chill the surface;—Keep it *cool* not *cold*, or you may have visceral inflammation. Do not follow the old plan of keeping the patients hot, for this will keep up bronchitis, &c. Keep them cool, and let the temperature be uniform. I have never tried cold affusion, and should be frightened at it. If you find, after a careful examination of the chest, that any *itis* is present, attack it just as you would if no measles existed. Bleed either generally or by leeches. Before the eruption we should scarcely do this, but afterwards we should. In *young* children leeches will do very well; in older bleed. Purging and low diet are required. If the eruption does not appear you will remember that this depends on some internal affections which nine times in ten is inflammatory, and eight times in nine, chest inflammation. Subdue this, and you have the eruption. You may have measles suspended by the internal affection, and then reappearing after this is relieved. In some cases, the cause of the recession may be debility, requiring ammonia and wine. The diarrhœa, of which I have spoken, must be treated as inflammatory. You must press the abdomen, and watch for tenderness. Treat the diarrhœa by sinapisms, leeches, and even bleed, if necessary. Opium chalk mixture, &c., will make bad worse.

SYDENHAM first pointed this out. You must not, however, fancy that the diarrhœa is *always* inflammatory; *sometimes*, you will see

it beneficial by opium and astringents. In some cases, you will unite this plan with the remedies for inflammation; in others, treat for inflammation alone, and the diarrhoea will cease. This is a most important point in practice, although very simple, and unless you attend to it, you will do much harm instead of good.

LECTURE XXXVI.

CUTANEOUS DISEASES.

DURING lactation, children are not so subject to measles as when older. We may often see a whole family affected, except one child, and that one at the breast. To make out fully if adults are equally susceptible with children, we ought to have many circumstances and conditions which we cannot have; and therefore all we say is, that it attacks children rather than adults. In some rare instances, we may see measles at sixty, and small-pox at seventy; but this, like the case of very young children, is very rare.

We usually see the disease very severe, if the catarrhal symptoms are long continued, and violent, before the eruption comes out. Cold weather seems to aggravate it. The mucous membranes suffer as well as the skin, for sometimes we see, about the fourth day, small dark patches in the mouth, throat, &c. This is indisputably a contagious disease, and it may be produced by inoculation. Dr. HOME, of Edinburgh, proved this long ago. It has been disputed or neglected, but Dr. SPERANZA, of Mantua, showed in 1822, the truth of it, by inoculating seven cases, himself being one, in which he induced measles. We must probably have vesicles to procure lymph from, and, as I told you in my last lecture, we sometimes see small vesicles. In these cases, the lymph is probably contagious. Very often, however, you will fail in exciting it, and yet, as the natural disease is so severe, and the artificial so slight, it is a pity that the subject is not more attended to. Indeed we could do no harm by it, and we should have the advantage of choosing our own time of the year. I would even cause measles in summer, by making children wear the clothes of others, for it is better to have it in the warm weather.

RUBEOLA SINE CATARRHS.

RAYER denies that this ever happens. Dr. WILLAN, however, gives an account of two real cases of measles, in which there was no cough, sneezing, &c. RAYER calls these cases roseola. I myself have seen one instance, in which several children of the same family had measles, one of them having no catarrhal symptoms. This child had measles again, with catarrh, the others never had it again. Therefore, we say, that without the catarrhal symptoms, you have no security from a second attack.

All contagious diseases may occur in an imperfect form. They may want their usual time or their intensity, or both. Small-pox may exist without general indisposition; so, also, may measles. Dr. WILLAN says this kind of measles may proceed to the ninth day,

without catarrh, and the corresponding form of small-pox, *without indisposition*. Sometimes about the seventh day, the rash becomes yellow or livid, the pulse will be weak and languid, but all this goes off in a week or two. Many skin diseases, when subsiding, become dingy or yellow; therefore we say there is no danger from this appearance. It may perhaps, in measles, arise from the blood being particularly stagnated, or from some other change in the circulation. It is called *R. nigra*. Some say, however, that putrid measles really do occur. I think, however, that in these cases, measles have been confounded with scarlatina. Dr. A. T. THOMPSON says he saw a case in 1804, where the pulse was depressed, and the whole state of the patient very alarming. Recovery, however, took place, from wine and cordials. This must be a very rare form; the other, *R. nigra*, is not very uncommon. Pl. xx. shows the *rubeola sine catarrh*, which you will remember, is thought not to exempt from a second attack. Therefore, if you have no cough, tell the friends that the child is not safe from another attack. Doing so will save your character. Pl. xxi. shows *R. nigra*. There is nothing peculiar in the eruption of *R. sine catarrho*.

There is much variety, as in all other contagious disorders, as to the time which elapses after exposure to infection, before the disease begins—perhaps from five to fourteen days may be the average.

Mild cases do not require any active treatment. Low diet, and coolness of the room, with perhaps a slight aperient, are all that is required. Heat, you will remember, will do harm by encouraging bronchitis. Do not bleed to *prevent* bronchitis; it will be time enough when it begins. When you find this the case, apply leeches to a very young child, but if an older one, bleed from the arm or the jugular vein. Use the warm bath, for there is scarcely any disease in children, which is not relieved by the warm bath. Be on the look out for local inflammation, and put it down at once. For the diarrhoea, apply blisters (but these are very dangerous in *quite young* children) or sinapisms. These are better, because they produce the required irritation in a shorter time, and with greater certainty. You may give astringents when no inflammation is present, or you may, I have before said, combine them with medicine to remove the inflammatory action. The diarrhoea when obstinate, will often end in mesenteric disease, and the bronchitis often induces phthisis. Thus you may lose your patient by either of them, or by both.

In treating the putrid form, if such there be, we must have recourse to stimulants and tonics; taking care, however, not to confound the blackness from congestion or inflammation with that from putridity. This a careful practitioner will scarcely do.

SCARLATINA.

Small-pox, measles, and scarlatina, have been confounded together by different authors. This is more especially true of scarlet fever and measles. In fact, 1793 was the date of an accurate diagnosis, according to Dr. BATEMAN. Perhaps, in a hundred years, we, in our turn, will be thought to have been ignorant fellows. And,

indeed, I trust it will be so. You know we cannot settle if cholera has existed before, or if we have a new enemy to grapple with. There is the same dispute about scarlet fever;—some maintaining that it has existed for two hundred years only, and others referring it to all dates. It gets its name from *scarlatia*, a red-coloured cloth. It commences with much pyrexia, and, generally on the second day. The diffuse, vivid scarlet efflorescence appears on the skin, and in the mouth and throat. This rash lasts about five days. When it ceases, the skin becomes brown, rough, and scurfy; and every part of the skin, which has been the seat of the eruption, desquamates. It is a highly contagious disease, arises from contagion only, and occurs (but there are exceptions) but once in a life. The number of these exceptions I believe to be greater than in small-pox, in the same manner as it is greater in small-pox than in measles, viz. about twice in each case. However, this is but an approximation, as very often rashes like roseola are confounded with scarlet fever. Nurses and others, attending on children with scarlet fever, will often get a sore throat, and that even severe; sometimes, too, this sore throat will be accompanied by a rash like the bites of fleas. Like measles, scarlatina is often epidemic, and that principally about the equinoxes. It attacks children usually, but not very young children. Persons are not so liable to it, as to measles and small-pox, as many people pass through life without taking it. Most persons will take small-pox and measles, if exposed to the contagion, but you will see many resist scarlet fever. I myself have never had the scarlet fever, though I have had small-pox, measles, whooping-cough, &c. It may and does occur twice, though, when I was young, this was disputed. Dr. WILLIAMS never saw it occur more than once, though he saw two thousand cases of it. The question, however, is now settled.

In children, you have the disease appear about four or five days after exposure; in adults, the period may be longer. It is both contagious and infectious, and may be transmitted to C. by A. visiting B., who has it; though A. remains perfectly well. Portions of exfoliated cuticle will, it is said, communicate it, but of this I cannot speak from my own experience. Perhaps they act as sponges for the perspiration.

In *S. simplex*, there is but little disturbance of the system. You will see innumerable red spots on the face and neck, and these will spread rapidly over the whole surface, uniting together and forming large patches. On the third day, these patches unite, and entirely cover the body. From the greater thinness of the skin, the redness is most vivid about the bendings of the joints. In some cases, particularly when the patient has been kept warm, the surface is of the colour of a boiled lobster. This is especially the case towards evening. The elevations or pimples in the skin are very small,—much smaller than in measles. It is, moreover, a different kind of elevation from that of measles; it is not continuous, not a raised table land, so to speak, but a series of roughnesses like those on an orange. The difference is easily made out by an experienced finger. You will meet with the roughnesses of which I have spoken on the breasts and extremities alone.

The eruption appears on the second day, is at its height on the fourth, and begins to decline on the sixth. The patches reappear in its decline, as it disappears unequally. They become pale on the sixth, and usually disappear on the seventh day, the skin falling off, about the eighth or ninth, in desquamations. If very severe, you will see, as in measles acute rheumatism, little miliary vesicles. The tongue, fauces, conjunctiva, &c., are liable to the eruption; the papillæ of the tongue becoming very large, and looking like red points peeping through a dry mucous. The cough, if any is present, is not the peculiar cough of measles, but one very different, a short, hacking, dry cough. When the conjunctiva is affected, you may have intolerantia lucis, but not the watery appearance seen in measles. You may have, in scarlatina, more or less discharge from both the inside and outline of the ear, and you may also have, as regular glandular abscesses, together with phthisis, bronchitis, and diarrhoea. You may, as in measles and small-pox, also have obstinate cutaneous affections, viz. rupia and ecthyma. But the most common thing after scarlet fever is, anasarca, and this, unlike those we have just mentioned, will occur after the mild form of the disease. It is, perhaps, to be attributed to the patient having caught cold in some way or other, about the second week. It is generally met with in spring and autumn. (Here the learned Professor exhibited a plate of the simple disease.)

When we have in the throat symptoms very urgent, we call the disease *S. anginosa*. In *S. simplex* the throat may or may not be affected, but when it is so at all severely, we have *S. anginosa*. This may be described, in one word, as being the mild disease greatly aggravated in all its symptoms, general as well as local. The heat of the surface may rise to 160 degrees; and you will have head symptoms, viz. restlessness, head-ache, and delirium. There is much trouble and pain in swallowing, the throat feels dry and harsh, the tongue is dry and very red, particularly at the sides and end. In *S. anginosa*, the eruption will not come out before the third day, and when it does, it will appear and disappear several times in the day. Thus the disease will last longer, because you have it piece meal, as it were, and in this it resembles what I told you of measles; as they may both continue several weeks. The desquamation, too, in *S. anginosa* is partial and irregular, or even none at all, if the skin has been but little affected, which is sometimes the case, even when the other symptoms have run high. The skin may keep on exfoliating in large patches, particularly on the hands and feet, for weeks together. The nails and tonsils, too, will be affected,—the first will be thrown off, and the last will have slight superficial ulceration, looking like sloughs, which, however, they are not.

S. MALIGNA.

We now come to consider this, by far the most dangerous form of the disease. In it, we have typhoid and putrescent symptoms, super-added to the common ones of sore-throat, &c. The eruption is similar in appearance, and is more dull and livid, than in *S. anginosa*; the heat is much lower, and the pulse much more feeble. There is every

symptom of inflammation within the skull; delirium, coma, redness of the eyes, &c., &c. You have lividity of the cheeks, sordes of the tongue and mouth, petechiæ, and sloughs in the mouth and throat, in fact, what you meet with in cases of typhus gravior. Death may take place at from the third or fourth day, to the third or fourth week; or you lose the patient some months afterwards from wearing out of the strength, by sloughing, exfoliations of bone, &c., &c. Sometimes the disease may, for the first few days, be merely *S. simplex*, and then you may have the typhoid symptoms come on without any apparent cause.

The appearances after death, are those which you find in fatal cases of typhus, that is to say congestions, inflammations, effusions, and inflammation of the surface, not of the interior, of the skin.

It is very fortunate that we seldom meet with the malignant form of scarlatina; indeed I have never met with a case. I have never lost more than two patients with scarlet fever. I do not say this boastingly, because the cases which I have seen have always been of the mild kind, and got well by cold washing, cold air, together with the local application of leeches. Though one patient may recover from the urgency of the typhoid symptoms, yet you may afterwards lose them from the chronic diarrhœa, great local discharges, &c. which are often left behind.

LECTURE XXXVII.

CUTANEOUS DISEASES.—SCARLATINA.

THE malignant scarlatina may be sporadic or it may, in some measure, give a character to the prevailing epidemic; that is to say, the majority of the cases may be attended with a tendency to typhus, and many may really have it—producing *S. maligna*. For the causes of this, we say that they may be owing to something peculiar in the epidemic, or in the constitutions of individual patients. The idea of any peculiarity in the contagion is not true;—in small-pox, we commonly find severe cases following from exposure to persons labouring under a mild form, and *vice versa*. The malignant form of scarlatina is more common in winter, than in summer. I do not know any reason for the great variety in the forms it takes—nor why it should at one time be almost epidemic, and at another, affect only a single person out of perhaps several hundreds.

You remember the Rubeola sine catarrho, and that I told you its occurrence had been denied. Well, we met with an analogous form of scarlatina, viz. the sore throat, &c., without the skin eruption. This has been denied, but Dr. WILLAN states that he has seen many cases, *which communicated the infection*, and which had no cutaneous symptoms.

We see, in the cases where the throat particularly suffers, that the eruption is very trifling; indeed, almost none. You may sometimes see cases of second scarlatina, and you will often find convalescents from it have a return of the sore throat, if exposed again to contagion.

In mild cases no treatment is required. Keep the patient opening, if the weather permit, the doors and windows: let him have cold simple drinks; strict antiphlogistic regimen, and an early purgative, and he will do very well. Some think that an early in disease, will often cut it short. Cold water poured on the surface of the body, will certainly do this, and without danger, the heat of the body being so great. If the temperature of the body is about 98; if you find no profuse general sweat, no feeling of thirst, and no internal inflammation. You will find the great advantage in pouring cold water on the patient. It seems a rough and violent measure, and friends dislike it, but I will always allow you to have him sponged all over with cold water, and you will find this a tolerable substitute. If you have occasion to bleed, you will, of course, bleed, but if not, do as I have directed you, and you will do enough.

If, however, you meet with inflammation of the head, chest, or abdomen, forget that it is scarlet fever, and treat it precisely as you would if no scarlet fever were present. Generally speaking, you will succeed by leeching, reserving the general abstraction of blood in cases absolutely requiring it, as it is liable to induce considerable debility. The sore throat is best relieved by leeches, much more than by blisters. These are sometimes very severe in their effect, but leeches will give certain and almost immediate relief. The tongue, as far as refers to the digestive organs, cannot be bled on, for you will remember it is itself one of the seats of the disease. Its foulness is from being itself inflamed, and not because the throat at large is labouring under inflammatory action. You will find the papillæ, as I have before mentioned, red, and peeping through the tough yellow mucus. The tongue, too, is much enlarged.

The heat of the mouth and throat will be much alleviated by water or ice. Sloughs are very common, but you must not remove every thing you see looking dark in the throat is a slough. You often remove an apparent slough, and find it to consist of a lymph, but, very frequently, they will be found to present a dark coloured, spotted appearance. These are the true sloughs, and cannot be removed. I mean, of course, not like the others, by cutting. The best thing for them, whichever, they may be, is the chlorine in the form of gargle. When gangrene threatens, the gargle must be strong. In common cases a gargle composed of two ounces of chlorine to half a pint of water will do very well. In cases where it induces much burning, it must be further diluted, but, in most cases, you must make it stronger. In very small specks, which are very common, it is the very best thing you can use. In most times you must apply by means of a syringe, as the patient cannot gargle. Never mind if he should swallow it, it will do him no harm. In the malignant form of scarlet fever, you must treat it exactly as you would a common case of typhus. Wine, Carb, Ammoniac, is the best thing to wine, and that class of stimulants will be required. Give the wine liberally, as patients will bear a great deal of it. Avoid inducing intoxication, or even any approach to febrile action.

may give, at least Dr. WITHERING did, a bottle of port to a child every day for a week, and with benefit. Ammonia has found many warm advocates,—many imagining that there is something specific in its action, and give it in every case of scarlatina. This is folly, and worse, for you may excite fever and inflammation, if you give your ammonia in really active doses. However, bear in mind that the disease, in the vast majority of instances, needs no medicine, and be careful to leave well alone.

If you have the rash receding, make out first if it is caused by any internal inflammation. If so, apply leeches, or if severe, bleed. If not, put the patient into a warm bath several times a day, give him internal stimulants, and rub the surface well with stimulants.

When you wish to prevent children from taking this disease, and there does not seem the same necessity, so to speak, for them having it, as there is in measles and small pox, the best means are, keep them away from persons labouring under the infection; keep the house or nursery well ventilated, well cleaned, and dry; sprinkle about the chlorides, as they are thought to decompose the contagion. The ventilation, &c, dilute it so as to render it too weak to act;—a certain degree of intensity being necessary for it to inoculate the system. The patient's clothes should be put in a solution of the chlorides, and the various utensils should be washed out with them. By these means, you will perhaps prevent the disease from spreading in the house. Dr. HAHNEMANN, the founder of Homeopathy, recommends belladonna in very small doses as a prophylactic,—but we ought to have many hundred cases, properly authenticated, before we give credence to this. Its movements are sometimes very irregular, and by its missing some in a house, by its sudden and mysterious disappearance, and its equally inexplicable reappearance, we may attribute to belladonna what is, in reality, in no way connected with it. Therefore, it will be best to suspend our judgment until more numerous instances of its prophylactic powers have been given to the world.

The best treatment for the anasarca, (which I think arises from cold, and so does RAYER) is the antiphlogistic, as it is inflammatory. Purge well, leech for any internal inflammation, and you will easily get rid of the anasarca. Neglect the leeching, if called for, and the case will turn out troublesome. Some praise digitalis, but I do not think it necessary. You will find the anasarca begins in the face, and that the urine is albuminous or sometimes even bloody;—proofs of its inflammatory origin. You may have the anasarca arise from the cold affusion, if you have used it when the body has been cooled, but I do not believe you will, when it has been had recourse to in cases where the temperature has been high. I never met with anasarca, at least never when I had had the previous management of the case. If you use the cold when the disease is declining, you may produce anasarca. Therefore be careful to use it whilst the disease is at its height, and when the heat is great. The inflammatory symptoms existing with the anasarca, are almost always referred to the chest. Sometimes the anasarca will go off spontaneously, but this cannot be depended on. I treat it as I would the

common acute anasarca arising from cold and wet united. Indeed I have never seen a case of anasarca after scarlatina, which was not attended with inflammatory symptoms; but perhaps this is owing to my having been called only to severe cases.

You will also meet with rheumatism, as a sequela of scarlatina. You must treat it in the ordinary manner. If inflammatory, bleed for it.

ERYSIPELAS.

Rayer puts this amongst the rashes, Willan amongst the bullæ, or large collections of water. However, it may and does run its course without producing any vesicles, but usually it has a number. Perhaps, as the redness is always present, and the collections of water only in some cases, it will be better to put it amongst the rashes.

Erysipelas is the same kind of inflammation as roseola and erythema, only in a much more severe form. Heat, redness, and smarting, with little or no disturbance of the constitution, is called erythema; the same symptoms only milder, you would name roseola. But when you have them all in an intense state; the heat very great, the redness vivid, the constitutional disturbance very considerable, accompanied with much swelling and pain, you have a case of erysipelas.

You will know it from erythema, then, by the febrile symptoms, the pain, intense redness, and swelling—which may all be wanting in erythema. When it is attended with vesications, you can have no hesitation in pronouncing on the diagnosis. As in erythema and roseola, the redness disappears on pressure, but returns instantaneously. You will often find much constitutional disturbance present, for some time before the rash comes out, as in measles, scarlet fever, and small pox. The usual symptoms are head-ache, giddiness, furred tongue, rigors, &c. Some of these may be wanting, but others will generally be met with. After they have continued some time, the patient will have, about the second or third day, a smarting, pricking sensation in the skin attended with heat and burning. On looking at the part he will find it red and swollen. Sometimes the general symptoms will be alleviated by the appearance of the eruption, at others, they will become worse. Sometimes, too, the redness is the first symptom the febrile excitement coming on afterwards. When the rash has been out some time, you will see, in many cases, numerous little vesicles of water; but these will not always occur, neither will they in all the patches,—only in some. These vesicles vary in size, from being very small to large collections, called *blebs* or *bullæ*. The water is at first clear, but it gradually becomes thicker and more turbid. When the blebs burst, you have a thick scab left, which consists of the cuticle, with part of the fluid dried on it. If you have no vesicles, you will always have the cuticle peel off. As after a common blister, so in these vesicles, when they burst you may have a purulent matter thrown out by the cutis;—and this fluid, by running on the neighbouring parts, will excoriate them, and thus prove very troublesome.

Erysipelas has a very great tendency to change its seat, and to

extend itself by continuity. And you may have every possible combination of circumstances in this changing and spreading. You will sometimes find that as it spreads, the old parts will get well; at other times, they will not; so that you may have at one time, every hue of redness, from the fiery colour of intense inflammation, to the purple of congestion, or the dark brown of decaying inflammation. When it changes, you may have two kinds of change, viz. *metastasis* and *dlitescence*; in other words, a change from the skin to the internal organ, or from one part of the skin to another. It is said to be *erratic*, when it creeps along from one part to another, even should the first part not get well. But the cellular membrane may become infiltrated with serum, in which case you have

E. OEDEMATODES.

When you have the cellular membrane as well as the skin affected with the inflammatory action, pus is sometimes poured out;—it is then called *E. phlegmonodes*. In this form of the disease, you have great pain, tension and hardness;—the constitutional disturbance, too, is very severe. You will sometimes see extensive undermining of the skin, from the purulent matter poured out; at others, but a small collection of matter will follow. It is not uncommon, from some peculiarity in the cellular membrane round the eyes, to find suppuration there, when there is none in any other part of the face. It is not uncommon to see the arm, leg, or thigh, completely burrowed with abscesses after phlegmonous erysipelas. Like scarlatina and measles, erysipelas is to be found in the mucous membrane of the throat, the mouth, tongue bronchial tubes, &c. You will recognize this by the corresponding symptoms, viz. sore throat and cough;—in fact, in severe cases, every symptom of bronchitis. It will not, however, in general, require to be met by active treatment—but will disappear with the erysipelas. The irritation or inflammation will often descend the œsophagus, into the stomach and intestines, and in that case, the belly seems to the patient as if on fire. Nay, it is sensibly hot to the touch, and diarrhœa is the consequence. A very common thing is, to see the membranes of the brain affected particularly when the face and head are the seat of the disease. When this occurs, you have delirium, drowsiness, and if matters keep getting worse, apoplectic symptoms. Therefore in erysipelas of the head, keep a wary eye on any head symptoms. There is much disfigurement, from the swelling, when the face is attacked, the eyes are closed, perhaps the eye lids particularly the lower, are distended with water; the cheek may be raised to a level with the nose, and altogether the face acquires a ruffianly character. When I had the disease, and, with a good deal of difficulty, managed to see myself in a glass, I should not have not known a feature. Now, when you lose a patient after this metastasis to the brain, you will find either inflammation or effusion, or both—together, with congestion. I have always found serum effused in the ventricles, or upon the brain or in both situations.

But you may have mortification and sloughing, either confined to

the skin, or descending deeper into the cellular and muscular structures. Or you may not have your patient live long enough for sloughs to form, but he may die, exhausted by the violence of the inflammation. This form is called *E. gangrænosum*. It is common in infants at the genitals, umbilicus &c; perhaps from the skin containing a greater quantity of blood, than at a later period of life. In these cases, you will generally lose the patient. Thus, as in common continued fever, or in scarlatina, you may have all forms of erysipelas, from the most active and intense inflammation, down to the most complete and perfect overthrow of all the vital powers. This being the case, of course you must adapt your treatment to the individual case. If you have a healthy, strong patient, and the symptoms are at all violent, bleed freely from the arm. You will thus knock down the disease at once. But if you have a patient of debilitated constitution, no matter from what cause, confine yourself to a mere antiphlogistic treatment, unless urgent symptoms arise. You must purge, taking care not to carry it to too great an extent. Apply cold water until the patient complains of being uncomfortable or chilly; then let in cool air. Do not fear any metastasis, I never saw it induced by cold water, and I always use it, and used it to myself. Local bleeding will relieve much. Put on leeches without fear. You will be told that you must not put them on the part itself; that their bites will turn out troublesome; that if any tendency to gangrene is present in the system, it will be excited by them. Do not believe a word of this; but you may to please others, use needles as they *never* produce any mischief. By either leeches or needles, you disgorge the vessels of an immense quantity of blood; besides relieving tension, and the pain dependent on it. The nitrate of silver will if drawn round the inflamed part, check its spreading. You may rub the nitrate itself, or a strong solution round the part; either will do. Blisters are used by some, but I prefer the caustic. For further information, I refer you to the works on surgery, respecting what I have told you that you may arrest the erysipelas without difficulty by its use. The only trouble is, in insuring the complete insulation of the reddened surface;—you must not leave even a pin-hole, for if you do, the disease will creep out at it. And yet this is often done, and then the practice is blamed. It is exceedingly useful to be able to stop the disease when it attacks the head and face, and thus anticipate cerebral affections.

In *E. phlegmonodes*, when the tension is very great, you must let out the blood, by incisions instead of leeches, and then you will have the tension cease. It is matter of no consequence whether you make the incision a foot long, and so have but one, or whether you make a dozen of an inch each, and so do it by instalment:—but do it you must, when the tension is very great. You may also let out pus in the same manner, and thus prevent it from burrowing under the cellular membrane. When you have threatened mortification, do not, because it is threatened, give bark, wine, and opium, but try to keep down inflammation (if it depends on inflammation) by antiphlogistic means. And if, on the contrary, the constitution is sink-

ing, you must give ammonia, bark, wine, porter, and better living must be allowed. But remember that your patient may die, from exhaustion without gangrene, and you must, as with gangrene, give wine and the other stimulants freely. When in doubt to which class to refer the cause, give milk, beef tea, and quinine; apply cold to the part; and unload it of the blood by leeches and needles. You will seldom find the quinine do harm, even in really active erysipelas, and in doubtful cases it is always safe.

The usual *causes* of this disease are, cold, wet, mechanical or chemical irritants, and a peculiar tendency to it, which is met with in some situations and persons. Persons of a highly inflammatory temperament, or of broken-down, worn-out constitutions, will often have an attack from the puncture of a pin, or the bite of a leech. Some localities, as hospitals, are more exposed to its attacks than others, and in such hospitals it will come on more frequently after surgical operations, than it will in others. Season, too, has much power over it. It may be said to be some times epidemic. But about the cause of these things, we know nothing. We only know that such things are.

Now, a question has been raised about its contagiousness, some denying and others maintaining it. Dr. WELLS was the first to assert its contagious nature. I believe, from having seen people take it from visiting others, that it is contagious. You have all seen it, when once it has got its admittance into a ward, spread from bed to bed. It may, however arise from some local cause, instead of some emanation from the patient. I once had it, and, as I thought, from having caught it by the breath of a patient who died of it. However, it was in the winter, and as one may then take it from cold, I am not sure about it. Therefore, I have seen instances where it *seemed* to have been propagated by contagion, but I not quite *sure*.

LECTURE XXXVIII.

CUTANEOUS DISEASES.

Now, there are many, who, having been brought up with the idea that erysipelas has something specific in its inflammation, and that bark is a specific for it, give it in every case. Dr. FORDYCE was the first to introduce this practice. I never followed this practice, for when I found tenderness of the epigastrium, vomiting, full pulse, good constitution, and general febrile symptoms, I never gave bark, but combated the disease antiphlogistically. I have no doubt, however, that bark may be given in many cases of active erysipelas, without doing harm;—only you neglect the means of doing good. Even if left to themselves, the majority of cases of erysipelas will usually do very well. And you may sometimes see this with highly inflammatory symptoms. It is a peculiarity of this disease. And from such circumstances as these, has arisen the doctrine of the specific character of erysipelas. On the one hand, you cannot carry your evacuates to the same extent as in other diseases, and, on the other,

bark, wine, &c., will do no harm, may sometimes do good when you could not think of exhibiting them if the disease were pleuritis, &c. A third circumstance is one I have already told you of, viz. that, when in doubt, you will be quite safe, if you give wine, porter, and quinine in moderate quantities. I never saw harm done when it was near the balance. You will, as I have done, sometimes give these things too, earlier in other inflammations, but not in erysipelas. In fact, as a general proposition, and one which I have verified over and over again, you may give *bark* in inflammation of any kind, even the most active, without doing harm; nay, I have sometimes thought even with benefit. Mind, I say *bark*, not wine. But you must treat the inflammation by proper measures; as in ague, for instance. Be careful, however, how you give the bark in erysipelas, if vomiting be present. In London, from the prevalence of gin drinking, you will find a large proportion of the cases require supporting.

You may apply, locally, heat or cold. I prefer cold—others like starch, flour, &c. If these powders are quite light, so as not to irritate the part, I do not think they do any harm. Perhaps, when there is much discharge from the vesications, the oxide of zinc, may be useful as an absorbent. But do not neglect the cold applications.

We next propose to consider scaly or *squamous* diseases. In these, there is no moisture secreted, but the cuticle is thickened and diseased, forming scales. Now in lichen, measles, and so on, we have found that the cuticle comes off in scurf. It dies without becoming diseased,—but in the *squamæ* there is disease of it. This is the way we distinguish between scurf and scabs. You will remember that there is no exudation. There are three genera in the order *squamæ*, and they are all very common chronic diseases. They are not contagious, and they are not confined to one attack in the course of one's life. They are also much disposed to become chronic.

Pityriasis is the simplest of the three. The scales are very thin. On the head it is called *P. capitis*, dandriff of the head. This is very common with children. When there is more cutaneous irritation it is *P. rubra*, so called from the colour. It will last for an uncertain time, but usually gets well,—sometimes spontaneously. To cure it, you must keep the head clean and cool, keep the child from stimulants, and give hydr. cretâ. Some like antimonials or decoct. lignorum. However I succeed best with hydr. cretâ. Ung. zinci is a useful cooling application; only any ointment, even the mildest, will sometimes keep up irritation. It is the grease that prevents it from getting well;—therefore, you will do no good by making the ointment milder. Damp the part with water and sprinkle on a little calamine powder, and you will often find the disease get well without further trouble. There is a variety, *P. versicolor*, which is seen on the neck and chest of young women. You will not succeed in getting it well by medicines, but the local application of acids, though painful, generally answers. Paint a part, and if it gets well, paint another. I can not tell why these diseases come on. Perhaps the *P. capitis* or *rubra* may sometimes depend on debility in the chil-

dren. If so, give tonics, as quinine, iron, &c. with good diet. You will rarely find it, however, refuse to give may be hydrarg. c. cretâ, with milk diet. *Lepra* and *psoriasis* are very common diseases, they resemble and run into each other,—and principally young men and women, more commonly the former are affected. They do not generally affect the health, and though sufficiently bad, are by no means so loathsome as the name of them (*lepra*) would lead you to believe.

Now, in *Lepra*, you find the patches round, the cuticle is elevated, white, and silvery. The size varies from that of a pin's head to a space which would not be covered by a tea-saucer. You will find them principally on the arms, legs, occiput, and thighs. The face too, and the whole scalp are often affected. It is a very good practice, in skin diseases, to examine every part, or at least several parts of the diseased surface, as they vary in the distinctness of their character. The common form of *Lepra* is *L. vulgaris*. The patches are all circular, the large ones being composed of smaller ones, all of them, however, round. The large patches may be very irregular in shape, and I speak of the small ones being round. When they get well, they do so from the centre, leaving a ring of diseased cuticle. *L. alphoides* has the scales glistening white. *L. nigricans*, on the contrary, is known by their being rather black. These forms are very rare in infants. You will sometimes, but not often, see them at eleven or twelve years of age. The usual age, however, for it to come on is, from about seventeen to thirty. In nine cases out of ten, we can give no reason for the attack. In the tenth, the patient may, perhaps, have drunk cold water when heated, a very common source of the non-contagious cutaneous affection. From whatever cause it arise, it is always very troublesome. It may last from two or three months to twenty years, and some cases never get well. Sometimes it will go off, and then return. If you inquire, you will usually find, both in this and other cutaneous diseases, some head or abdominal symptom. If you bleed, the blood will probably be cupped or buffed. Even when there are no such symptoms, the irritation and itching will often be relieved by the bleeding.

In *psoriasis*, the patches are oblong, not circular; they heal, for the most part, from the margin; and the margin is not raised. The skin is very apt to crack, forming *rhagades*, and it shows more inflammatory marks than *lepra*. By these signs you will recognize *psoriasis*, when pure, but the two often run into each other, perhaps coexist, and then the distinction becomes impossible. There are many varieties of *psoriasis*. *P. guttata*, *P. diffusa*, *P. palmaria*, and *P. gyrata*, are the most common. The first exists in dots; the second in patches; the third is seen in the palm of the hand, or the soles of the feet; and the fourth looks like worms contorted. When the inflammation is high, the cracks are very severe and the pain and smarting very great. I never saw a case of the *gyrata*, but you will find them all delineated in the plates.

Thus then, if the disease has scales, it must be pityriasis, *psoriasis*, or *lepra*, and you will tell which of the three, from what I have already said. These are not usually contagious, but I think I have

seen two or three cases, in which lepra was communicated by using the same towel. I do not say positively that it is contagious, only that the circumstances were suspicious. Sometimes the whole of the body becomes covered with crusts and scabs. When this is the case, the inflammatory irritation is very great, so that fluid is poured out, making the case what is called *P. inveterata*.

TREATMENT.

First, make out if there is inflammatory action enough, to admit of bleeding and other active antiphlogistic remedies. Many cases will be cured by low diet, and occasional bleeding. If lepra arises from syphilis, then give mercury, as you will do no good without it. Do this also in lichen; but psoriasis seldom arises from this source. When the colour of the leprous spot is copper, and when they have a knobby tubercular feel, do not doubt its syphilitic origin, but give mercury at once. This rule answers for psoriasis and lichen, as well as for lepra.

When sufficient inflammatory action is not present to warrant bleeding, you must try other remedies. Give, for instance, a pint of the decoction of dulcamara daily, beginning however with about two ounces three times a day. I have seen it cure many cases of the disease. Arsenic also, will often cure. These are the remedies on which I place most reliance. Pitch, tar ointment, zinc ointment, have all been of service. I like the tar ointment when you have no inflammation. The warm bath, if judiciously employed, may be of much service. It will not weaken, even if used twice a day, if patients do not keep themselves hot afterwards. The tar ointment should not be used if the affection is of syphilitic origin. Dulcamara is, I think, more useful in lepra, than in psoriasis, but you will get the greatest possible advantage from bleeding, low diet, &c. &c. Sulphuric and other acids, if given perseveringly, will often succeed. You may and must give them in large quantities of course, gradually increased. It is astonishing how much will be borne, if gradually administered. But above all things do not neglect the antiphlogistic treatment in these diseases. Examine every case for proof of inflammation, and act accordingly. In some cases, greasy applications give relieve to the cracks, in others they only aggravate. In psoriasis, take particular care that the patient gets no stimulants. Keep him from wine, beer, highly seasoned dishes, and so forth. They would only be adding fuel to fire. Alkalies I have no doubt are often serviceable;—but why or how, I cannot tell, any more than I can say why arsenic and dulcamara do good.

LECTURE XXXIX.

CUTANEOUS DISEASES.

I SHALL commence by speaking of those diseases, which are characterised by the secretion of a thick watery fluid; such as exhibit very minute collections; so that the first description applies to those termed

vesiculæ. Should the liquid be pus, the diseases are termed *pustulæ*. If the secretion be water, and the collection is great, the diseases are called *bullæ*. Bullæ and vesiculæ differ only in size. The contents of a vesicle are serous, and they are called *limpid*, which term is indefinite; therefore it is more proper to say serous. Dr. WILLAN defines a vesicle, to be a small orbicular elevation of the cuticle, containing lymph, (which we had better call serum) sometimes clear, transparent, colourless, but often of opaque whitish or coloured. The serum may be perfectly clear, or it may be rather of opaque, or purple; and such an eruption as this, may be succeeded either by a scurf, or by a scab. Should the fluid be absorbed, and the cuticle which is detached, rub off by degrees in minute proportions, you have scurf; if on the other hand the fluid be not absorbed, but the cuticle is ruptured, as the fluid exudes, you have a scab formed by the dryness of the fluid. A scab may be formed either by such serum, or by pus; of course in this disease you have a scab. Dr. WILLAN defines a scab to be, a hard substance, formed of fluid discharged from ulceration. Therefore a scab may be formed either of serous fluid, or by a concretion of pus. The first disease among those which are characterized by a watery secretion in a minute collection, and of which I shall speak as being the most minute, having the most minute vesicles is the eruption termed :—

MILIARIA.

The vesicles in this disease are very minute, and numerous, about the size of millet seed; from which they derive their name. You will have a slight inflammation of the skin, and a slight rash. Sometimes a little more, and then the disease is termed red miliary eruption. Should there be scarcely any, or what there is disappears, and there be only white varieties, then it is termed white miliary eruption. There are some who conceive that the red is neither more nor less than scarlet fever. Some years since, the diagnosis was very imperfect, that numerous cases of miliary fever were called, scarlet fever; should there however be much inflammation, the skin will be red, if not, it will appear white, from these small vesicles. These miliary eruptions are very often nothing more, than attendants upon other diseases; they will come on at an uncertain period of various cutaneous diseases. You will continually perceive them in measles and in scarlet fever. I have seen it on the hands in acute rheumatism. They are most abundant on the breast, neck, and back, on the face, and extremities, they are less copious; and they will appear and disappear in uncertain order. Should the disease be exceedingly copious, the eruption is immediately preceded by an unusual degree of languor and faintness, by a profuse perspiration which accompanies it the whole of the course, which has a sour smell or it is similar to the smell of rotten straw. There is sometimes a sense of heat pricking and tingling in the skin before the eruption comes out, and even during it. The vesicles at first are very small, and filled with transparent lymph; but in about thirty hours the lymph will become more or less opaque and milky. The tongue may be dark and red at the

edges, and the papillæ may be elongated. There may be aphthæ of the mouth and fauces. The duration of the disease is very uncertain; it is said to last from seven to ten days, or longer; but crop after crop may come out, and protract the case perhaps six or seven weeks.

This disease is supposed by BATEMAN to be nothing more than the effect of bad treatment. It was very common formerly if lying-in women were kept in a heated room, when a number of blankets were placed upon them, thick curtains were drawn around the bed, and a fire blazing in the apartment. Under all this it would have been strange if they had not sweated and had a miliary eruption of the skin. It is supposed that there never was a specific disease of this kind, but that it was the result of over-excitement of the body when there was more or less feverishness. There can be no doubt, that there is such a specific disease as miliary fever, besides the miliary eruption which may be produced by stimulating a person improperly by heat. Some years since in this country, at different times, there was a disease termed *sweating sickness*, which was characterized by these very symptoms; and this disease now prevails from time to time in some parts of France, as in Languedoc and in Normandy. The disease has frequently prevailed in those places, not sporadically, but as an epidemic. These are most places, and the disease is there thought to be by old writers in this country contagious. The fluid from a vesicle has been inoculated without success; but in the places I have mentioned some people declare there is no doubt of its being contagious. It affects adults, and particularly women. It is said to prevail only between 43 and 59 degrees, north latitude. Should it come on in the epidemic form, it may, similar to most other diseases, be either mild or severe, so that it is divided into benign and malignant. The *miliaria benigna* is preceded by lassitude, frequently by pain over the eyes, and loss of appetite; but persons sometimes go to bed well, they wake in a profuse sweat, very soon vesicles appear, and they perspire till they die, or the symptoms cease. Sometimes before the eruption comes on, they complain, as people do in this country, of a sense of heat along the skin; and the sweatings are so profuse that the patient is actually steaming. In the violent form of the disease all the symptoms are intense, but the stomach is found to be particularly affected; what is called *gastro-enteritis*, an inflammation of the mucous membrane of the stomach and intestines, occurs. The sweats are exceedingly fetid, and the patient smells exactly like rotten straw. The eruption generally comes out on the second or third day, and continues from two or three days to two or three weeks. There may be merely scurf afterwards, the contents of the vesicles being absorbed; or there may be an oozing from the vesication, and extensive desquamation may ensue: there may be violent headache, with giddiness and delirium. Such is the disease as it prevails in many parts of France.

The treatment of this disease, when it occurs as we see it from the effect of hot regimen, or a violent inflammatory complaint, consists in simply keeping the patient cool, and the whole will then subside. But in other countries, when the disease prevails epidemically—when

they have what is called the sweating sickness—then it is frequently necessary to take away blood, to give a patient fresh air, and sponge him well. But sometimes it is necessary to take away blood, and pay attention to the inflammatory state of the stomach and intestines—to take especial care not to give anything that will irritate those parts—such as emetics, or purgatives. Other cases may occur, in which it is necessary to support the patient well.

Herpes is a vesicular disease characterized by a great degree of inflammation at the base of the vesicles.

Herpes may be distinguished from some other vesicular diseases, being attended by a greater degree of inflammation. It is a common affection, and without any danger. It is a disease which frightens patients considerably. In most of its forms it is an acute affection, and commences probably with general feverishness; and a considerable degree of smarting, and tingling of the skin; which looks red, and clusters of vesicles then appear, it usually continues from eight to ten days to a fortnight. There will not be a large number of vesicles diffused over the body but they take place in cluster after cluster. The eruptions which you perceive coming on suddenly on the chin, are of this description. The contents at first may be clear, but they soon alter and become opaque and yellow. The scabby mouths of children are nothing but herpes. Sometimes it will take place around the whole body. The patient will be seized with a violent pricking, tingling, and smarting, and then vesicles are perceived which form a cluster; and this will progress on cluster after cluster being formed, until a belt is made. This is called shingles, by the people, but in medical language it is termed *H. zoster*. Sometimes the patient is a little indisposed at first, he feels a little head ache with feverishness, and sometimes he experiences no such symptoms. Should the affection occur in separate clusters, it is termed *W. phlyctænodes*, but if it extends round the body it is called *H. zoster*. It can make no difference as to the nature of the affection, whether it occur in clusters, or mere patches, for there is at first a smarting, and tingling in each, and when this subsides there is great itching. In this disease there is no danger, yet it may be quite proper to deprive the patient of some of his diet,—to give him a gentle dose of physic. One of the best applications to the part is *oxyd. zinci*. You should not employ grease, because it irritates the part exceedingly; but should you powder it with zinc, the fluid is generally absorbed, and you cure the disease. By this treatment you may decrease the smarting and irritation, and lessen the duration of the affection. It will disappear of its own accord, but you can mitigate it, and by so doing give ease to your patient. Herpes præputialis and labialis, frequently appears in a very local manner; for example about the prepuce of the male, and on the pudendæ of the female little vesicles will sometimes appear, which are herpes. They take place too about the lips, and angles of the mouth; and sometimes to great extent over the mouths of children, in consequence of picking them, thus raising a scab and inducing a sore, which continues some time. Should it occur on the prepuce it is termed *H. pra-*

putialis, if on the lip *H. labialis*. The best mode of treatment that can be adopted is moderate antiphlogistic measures, purging, the application of cold water, and some moderate astringent powder to suck up the discharge. When it occurs on the prepuce, it is often mistaken for a venereal affection.

Now and then the disease will be so arranged that you will perceive a circular form of the patches, with the vesicles only on the circumference. This is termed *H. circinatus*. It being merely a number of vesicles spreading on the outward boundary. The great utility of distinguishing this disease, is, that you may not mistake it for a serious affection, and that you may be competent to give an accurate prognosis. The patches heal in the centre, and are usually round, from which it is termed by poor people *ring-worm*. The same treatment is applicable to every form of this affection. There is one form of this disease, where you will perceive various colours, in consequence of which, it is termed *H. iris*. It takes place in circular patches, and each patch is of a different hue. It is usually perceived on the back of the hands. BATEMAN describes it thus:—The central vesicle is of a yellowish-white colour, the first ring surrounding it is of a dark, or brownish red, the second is nearly of the same colour as the centre, and the third, which is narrower than the rest, is of a dark colour, the fourth and outer ring, or areola, does not appear until the seventh, eighth, or ninth day; and is of a light red hue, which is gradually lost in the ordinary colour of the skin. The iris has been observed only in young people, and was not connected with any constitutional disorder; nor could it be traced to any assignable cause. In fact, it is only inflammation of various hues. It is a very pretty sort of disease. There is no difference in its cause from the others, and no difference in its treatment. Sometimes we can discover no cause for this affection; but it will come on after some little error in diet. There are concentric circles, so that there may be a succession of these inflammations. Each of these forms of herpes may last a long time. The next disease is very much like herpes, so far as it is a vesicular eruption, but it differs from it in having little or no inflammation. This disease is called *Eczema*.

The decided difference between the two affections is, that herpes has a great degree of inflammation, and eczema none. You will frequently see an eruption of vesicles on the skin, without any inflammation at all; but they are larger than miliaria, therefore they are not miliaria, but eczema; and if there be inflammation attending them, you call it herpes. You will frequently perceive this on the neck or hands in summer. The eruption may last only two days, or it may last a considerable time. Any irritation of the skin may produce it; intense solar rays may give rise to it, so will stimulating acrid substances.

ECZEMA RUBRUM.

The disease, however, is sometimes very severe, extends over the whole body, and proves fatal. Perhaps we should hardly say it was

the same disease ; however it is so called by WILLAN. It is chiefly induced by mercury. Sometimes when persons have taken mercury, they have been seized with great heat of the skin—with feverishness—a number of vesicles have appeared larger than the miliary ; they have spread all over the body ; the cuticle has come off ; fluid has exuded ; and the irritation been so great as to make the patient quite wretched. At the same time the mucous membrane has become affected, and there is almost always cough. This, however, is not all : I have seen more or less disease of the throat ; frequently vomiting and purging ; the mucous membrane running from the fauces down into the abdomen having also been affected.

This severe form of the disease generally arises from some peculiar susceptibility of the constitution to mercury, it is necessary therefore to leave off that medicine. It is well to give the patient the utmost supply of fresh air, to open the windows and doors, and ventilate the room as much as possible. The smell from the discharge is exceedingly disagreeable, and you find it necessary to apply something to absorb it ; nothing answers better than zinc or calamine powder. The latter is exceedingly mild, and never produces irritation ; so that you may have the patient well sprinkled with it. You also find it necessary to support the strength ; to give nutritious broths, plenty of milk, and frequently porter, and even wine. There is extreme debility of body induced, and I have seen several die from it. Inflammation will come on, and you find a difficulty between supporting the strength on the one hand and subduing the local inflammation on the other ; so that you have to give, not wine or beer, but good broths, and trust on the other hand to the depleting effect of leeches. The case is one which it is very unpleasant to treat ; for after giving the patient the utmost support you can—tranquillizing his system by opium, you will find that, perhaps after six weeks, he will die ; and it is not to be wondered at, when you consider the extent of skin which is in a diseased condition. It is not always mercury which produces this disease, but by far the most violent form is that induced by mercury.

ECZEMA IMPETIGINODES.

This affection is sometimes attended by the formation of a puriform serum. The disease runs into a pustular form, and is then likely to be chronic, and may last a considerable time. The divisions of the disease are more or less arbitrary ; for this species of eczema may with equal propriety, be called impetigo, and therefore it is termed *E. impetiginodes*, in which you perceive that there is scarcely any inflammation, compared with the intense redness of the other, and sometimes none at all. If this local form of the disease occurs acutely, just give the patient a dose of physic that will do him no harm. Regarding that form of the disease which becomes chronic and runs into a pustular affection, it really is so nearly allied to pustular diseases, that it will save confusion if I speak of it when I speak of impetigo, for now and then you see a patient with vesicles in one

part and pustules in another. You may call it if you please impetigo-eczematodes just as we have eczema-impetiginodes.

That disease which is perceived more frequently in vesicles than not, is *itch*. WILLAN and BATEMAN both speak of it as a pustular disease; and it sometimes is so, but generally it is vesicular. It is easily distinguished by the watery heads of the vesicles. It is a contagious affection; but eczema and herpes are not. Itch is contagious in the limited sense of the word, it cannot be communicated by the atmosphere; and provided you do not touch a patient there is not the slightest fear of infection. I have frequently handled people labouring under itch, and without imbibing the disease. I caught the infection when a boy, from a nursery maid. By washing my hands after touching patients, I have never caught it. It is more commonly caught by sleeping with persons, or using something they have touched for some time. Working men frequently catch the itch when arriving in London, and sleeping in sheets that have not been changed. Children frequently imbibe it by sleeping together. In medical language, itch is termed *scabies*, and it takes place chiefly about the wrists, the roots of the thumbs, between the fingers, the ankle, and between the toes; but should it be any where, you are sure to discover it about the thumb. It occurs too, in the front of the body, on the chest, and in the axilla. The disease is attended by an intense itching. I do not know how long the disease may continue, but it appears never to wear itself out. There is no danger except to young children. I have perceived it occasion great feverishness in them, that if they had not been cured, it is probable, that derangements of the alimentary canal, or of the head might have been induced. Should the patient scratch himself, the vesicles are ruptured; they then dry, and get dirty, so that you have black heads. Probably a little blood exudes; but between the dirt drying with the fluid, and little blood oozing, you may have black heads. You may frequently mistake this disease in children for the irritation is so great, that superficial inflammation occurs to some extent. Independent of this, between, and around the vesicles, there is often common inflammation of the skin; and it will cause desquamation of the cuticle, so that the appearance of the affection is greatly disguised. The incessant itching in children induces them to rub their legs together, and you have in consequence much difficulty in recognizing the disease; but should you look at the roots of the thumbs, you will perceive the vesicular form of the disease, and its nature. Should the disease be of a watery character, it is denominated *S. lymphatica*., should it be very rank resembling pimples, it is termed *S. papuliformis*. These distinctions however are not very important but it is right to know, that the affection is sometimes characterized by pustules, large, full, and flat, resembling any thing but the little vesicles which you perceive in other cases. In common language this is termed "pocky itch," in medical language—*S. purulenta*. This disease is often mistaken, from its being so unlike the common form of the disease. It takes place between the fingers, and the back of the hands, and wrist;

where you will perceive large pustules of that description, denominated *phlyzacious*, attended with an inflamed base, and containing a thick yellow matter. When you have once perceived this affection, you will easily recognize it again. Some assert that this disease is sometimes caught from brutes, that have the mange. Should there be great inflammation, you will have suppuration necessarily induced. Even if you have the affection in this severe form, you will generally find, that in other parts of the body, the vesicles are exceedingly small. It is only where there is much irritation that this pocky form of the disease occurs. If you look all over the body, you will see the true form of the disease in some part or other.

I mentioned that it is very common after fever for itch to take place. I have frequently seen this, but whether it came on spontaneously, or contagion had been applied before, I cannot tell. The lymphatic form is that which generally occurs in such cases. Some have imagined that this disease arose from a small insect, but that is only a part of the doctrine, that all contagious diseases depend upon animalculæ. Some deny that there is any insect; some declare that they have picked an insect out, and seen it through a microscope; but others declare that they never could do so. This is not a dangerous disease, yet it is a very troublesome one, and is held in great abhorrence.

TREATMENT.

The great remedy for this disease is sulphur—but why, no one can tell. I do not believe that it has any effect when given internally. When I have employed it externally, I never found the cure accelerated by its internal exhibition. It may be employed in the form of vapour, or by means of baths, or inunction. In the latter form, it should be rubbed in night and morning; and the patient will soon cure the disease. Some employ sulphur baths. Others have impregnated water with sulphur, and say they have cured the disease in that way rapidly, and in a more pleasant manner than by rubbing in the ointment. It is said by some who have had great experience in the disease among poor people, that it is more readily cured by what is called *sulphur vivum* than by pure sulphur; if so, it is probably from the acrid matters which this contains. If there be no great inflammation of the skin, the sulphur produces more effect if you add *hellebore*, or some stimulating substance. If the *sulph. vivum* answer better than pure sulphur it is on this account.

The last disease among those which are characterised by vesication, is what is termed

POMPHOLYX.

WILLAN, and RAYER, make a separate order of this disease, while the only difference is, that in those of which we have been speaking the vesicles are very small, and here they are very large. I cannot myself see the reasonableness of making a distinct order of diseases, when the symptoms are precisely the same, and the only difference is a difference of size. We might as well call a tumor by one name if

it be as big as a nut, and by another if it be as big as the head. However, if the vesicles be very large, they are called *bullæ*; and because sometimes there are large vesicles in erysipelas, WILLAN and BATEMAN have placed that disease in the order *bullæ*; but as there are often only small vesicles, and indeed vesicles do not appear essential to erysipelas, therefore I have considered it, as RAYER does, under the order of rashes. When there is a very large elevation of the cuticle, a large collection of water, the disease is called pompholyx. It was imagined formerly that there was a particular fever attended by an eruption of large *bullæ*, and it was denominated pompholyx; but it is now doubted whether there is a distinct fever of this description. In common continued fever, and in other fevers well known, there may accidentally be a large *bullæ*, as in other cases there are vesicles not larger than a millet seed—miliary vesicles. However, this disease, which is characterised merely by large blebs of water upon the skin, is not very common, and yet one can hardly call it uncommon. In many instances it is really nothing more than large eczema, or large herpes;—a vesicle will appear on the skin, and instead of being small as it is in eczema, it is large, and sometimes there is an inflammation around it just like eczema, and sometimes it is a good deal like herpes. Sometimes you will have a vesicle on the skin of a person out of health, and if it be small, it is herpes or eczema; but if it be large, it is called pompholyx. You perceive in BATEMAN three varieties of this affection: one *P. benignus*, there is no great harm in that; one *P. solitarius*, because there is only one; one *P. diutinus*, because it is chronic. It is a pity to use these names, for who would conceive that there was much difference between *benignus* and *solitarius*? If it be *solitarius* it is likely to be *benignus*, and one is at a loss to see why sometimes it should have one name, and sometimes another. It is right to recollect, that the disease may come on with only one vesicle, or there may be several; or it may last for a short time only, or for a long time. It is very properly called *diutinus*; but we might as well call many other inflammations by the same term, for many last a long time. I do not know why the term *chronic* should not be employed. You will remember, that large vesicles on the skin, occurring as an idiopathic affection, is termed pompholyx. Sometimes there are only one of these, and sometimes a succession of them, and persons will have them month, after month. A patient in the hospital for some other complaint, all at once, without any reason, has had a great bleb on his foot, and you have nothing to do but prick it and it goes away. No treatment is necessary. *P. diutinus* is a very obstinate complaint, and I never saw any thing cure it. I have seen it occur myself under two forms; the one in a worn-out constitution, where bleb after bleb appeared on the skin, which cracked and oozed like a sore; and then, when the body was one mass of these, the health gave way and the patient died. In the other cases which I have seen, it came on in regular succession. I recollect the case of a woman who, once a month, had some large *bullæ* out on her face; they were attended with considerable smar-

ting; the fluid which used to ooze from them produced inflammation wherever it went; it then dried up, and the cuticle healed. The disease which occurs in a worn-out constitution requires to be treated by soothing measures.

TREATMENT.

You must exhibit opium and moderate astringents, sprinkle calamine to suck up the discharge, and support the patient well by means of wine, bark, and good nourishment. In cases, where there is no debility, you may treat the patient on antiphlogistic principles. I did so in the case of the woman where the disease came out once a month, but the success was very limited; the irritation certainly was diminished, but the eruption came out again. By looking out for local disease and attempting to cure it, applying the warm bath, and if any phlogistic state of the system occurred, taking away blood, we should be doing what reason dictated. Sometimes large bullæ are not attended with any inflammation around them; but in other cases there is a very sharp kind of inflammation, producing smarting, tingling, and a burning sensation. When they break, you have an excoriated surface, and a scab is formed of the fluid and the cuticle together. Suddenly a person will have one of these on his face or head, or both. Here there must be something more than an inflammatory state, because I have treated them with antiphlogistic measures, and have failed

LECTURE XL.

CUTANEOUS DISEASES.

THERE is another order of diseases in which the secretion that occurs under the cuticle is *pus*. In this order you will find several very important diseases, there is one for the most part of a chronic nature termed "impetigo"—another similar to this, only it is contagious called "porrigo," another termed "ecthyma," also cow-pock, chicken-pock, and small-pox. Consequently you perceive, that, except the formation of pus, there is no agreement among these affections; some are acute, and others chronic, some are simple diseases, and some are contagious. Some of the latter occur only once during existence, while others take place very often. Porrigo may occur many times—small-pox as a general rule but once. The first diseases of the order pustulæ is called "impetigo" I mention this first, because it is nearly connected with eczema. Eczema is for the most part a chronic disease, and is characterized by small watery vesicles, and often has, instead of clear lymph, a fluid nearly, and sometimes altogether puriform: if the latter we term it impetigo. The two diseases run completely into each other; and they are not either of them contagious. You may touch a person labouring under them, or inoculate with the fluid, but no harm will ensue; except sometimes, a slight degree of irritation. Impetigo will occur sometimes in circumscribed patches, similar to those you perceive in herpes. The disease will now and then extend very much over the surface, and it is termed, *I. sparsa*. Sometimes there is a thick scab, then it is

denominated *I. scabida*. The part affected appears like the bark of a tree, only you perceive it is not diseased cuticle, but real scab formed from dry pus. Sometimes there is very considerable inflammation around, that is termed *I. erysipelatodes*. Sometimes there is such irritation, that it is called *I. rodens*. You should always recollect, that it may take place in clusters, that it may occur with scabs, with a very considerable degree of inflammation and ulceration. Sometimes the fluid is here and there watery, not purulent, and then it is termed *eczema impetiginodes* and if there be pus in other parts, you may, if you think proper, call it *impetigo eczematodes*. These are the same diseases, only, according to the severity of the irritation; you will have pus or water. *Pustules* are divided into four kinds, according to their size, and figure, should a pustule be conically pointed and small, it is termed *achor*, if it be small but flat, it is termed *psyracium*, if it be larger and possesses a sort of honeycomb appearance, it is denominated *farus*; but if it be a fat, large, well fed pustule with an inflammatory base around, it is termed *phlyzarium*.

In this disease the pustules are small, just as the vesicles are small in herpes; they are of that kind which are called psyracia. You should recollect this variety of pustules, because one disease has one species of pustule, and another a different kind. When the itch has pustules, they are of that description called phlyzacia. It is well to recollect the appearance of the pustules in this disease, because in porrigo it is sometimes difficult to distinguish them from these, and the difference in the pustules is the principal means of diagnosis.

This disease is easily recognized, on account of its being a pustular affection, and being characterized by the formation of pus in small flat pustules, it occurs particularly on the extremities. You will continually perceive both men and women with this disease on the front of their legs, sometimes running all around, and sometimes upon the arm. If not properly treated, it will sometimes last for a very considerable time. Sometimes there is a great degree of inflammation attending it—a great degree of heat and smarting, and yet the patient, although he may have a bed-fellow, does not communicate the disease. It will last month after month, and sometimes even for years. The best method of treating the disease, has been to regard it as an inflammation—taking blood from the arm, applying leeches around the inflamed part, applying cold water as long as that was agreeable, and then exchanging it for warm, and exhibiting mercury. This is an affection in which I am sure that a moderate use of mercury is necessary. All this, however, will be of no use, if the patient do not limit his diet. If you do not discontinue wine and beer, and in some cases meat, you will not cure the disease. It is a disease which is exceedingly obstinate. If you adopt the plan I have laid down, although you may not eradicate the disease, yet you will lessen it to a very great degree. The chlorides are sometimes useful, and likewise the yellow wash, but frequently I have seen them irritate the part, and, altogether, the best local treatment is the application of some absorbent powder, such as calamine or oxyde of zinc, and the constant application of cold or warm water. In the case of

the leg, it is indispensably necessary that the patient should keep it as much as possible in a recumbent posture; just as he would do in any other inflammation of the lower parts of the body. In that form of the disease which is the link between impetigo and eczema, the treatment would be precisely the same. You will frequently see eczema of this kind behind the ears, running over the face and down the neck—sometimes attended with a discharge of water, and sometimes with a discharge of pus: in fact, it may be either eczema or impetigo. When there is merely eczema, you have a great deal of scurf upon the part, so that when the secretion is stopped the patient looks almost well; and then, when the part begins to run again, you have the neck looking moist and nasty, and quite a different appearance. Whether it is eczema or impetigo, I believe antiphlogistic treatment, with the moderate exhibition of mercury, and the application of an absorbent powder, answers far better than any thing else. Impetigo cannot be mistaken for any thing else except eczema, and they run very much into each other. It is a common disease; you cannot go into an hospital without seeing cases of it. You might almost as well give different names to rheumatism, if it ran down one shoulder, or occurred in both shoulders, or in one shoulder and one knee, as give different names to many of these cutaneous affections. It is very well to mention that they may occur in this way or that way. In plate xxxviii. of BATEMAN, you will see a representation of the disease called porrigo, which is nothing more than eczema; and the same may be said of the representation of psoriasis in plate ix. fig. 2. If there be a watery discharge it is called eczema; if it be matter it is called porrigo. Psoriasis, eczema, and porrigo run into each other.

ECTHYMA.

This disease is not contagious, and is characterized by pustules called *phlyzacia*, the large, round, well-fed pustules, with an inflamed base; this disease very frequently takes place in a bad habit of body. Impetigo takes place occasionally in a cachectic state of the system, but frequently it takes place in persons who are in other respects very well. Ecthyma is a disease which commonly occurs after small-pox, measles, and scarlet fever, and sometimes after syphilis, now and then I believe, it is itself syphilitic. It has pustules which are all distinct. In impetigo the pustules cluster, and when they are aggregated, they sometimes form groups of clusters; and sometimes they occur to a great extent, so that you have clumps, and now and then diffused patches; but in ecthyma, the pustules are all very distinct, and sometimes very large. If you were to look at a patient, and being ignorant of his history, you might suppose, that he laboured under small-pox. It is common to see this disease in patients in venereal wards, it being induced from taking mercury. You will observe that the pustules are all distinct and round, they are large, circular, and full of matter, not flat on the top, but globular. I have witnessed cases exactly like small-pox, and I have known a case sent to the hospital for small-pox, in consequence of the simi-

larity of the pustules. Sometimes you will perceive the pustules very large. When I say they are full, I mean they are distended. Should they be either large or small, the discharge concretes into a dark-coloured scab. I have had this disease when young. It is an affection which continues a considerable time. Some individuals who declare they have merely had gonorrhœa, often have an eruption exactly of this description. You can easily recognize it. In the first place you perceive that there are pustules, consequently the affection belongs to the order pustulæ. You also perceive that they are phlyzacia, that they all run into scabs. For the most part they are not very numerous, but when they are small they may be so. In impetigo they are circular, and not so distended, and have little flat tops. Now and then in impetigo they will congregate in one large mass, but in ecthyma, the scabs are all distinct; though they may be large. A variety of this disease is termed *E. vulgare*: but if it be a little darker, it is termed *E. luridum*. If lepra be dark it is denominated *L. nigricans*, and it is a pity the same adjective is not employed here. If it take place in infancy, it is called *E. infantile*. We might as well apply a separate epithet to measles, accordingly as the affection occurred in infants or adults. This subdivision runs throughout WILLAN'S arrangement. If the disease occurs in a bad habit of body, it is termed *E. cachecticum*. This disease will sometimes occur like all cutaneous affections, with a sharp inflammation, and may continue a short time like herpes, or some other inflammations which produce mere serum; or which cause no secretion at all, but constitute a mere redness. They commence with inflammation of the skin and feverishness; but the result of this affection will be suppuration. For the most part, however, ecthyma is a chronic disease, and continues a considerable time, the patient being very unhealthy.

You should allow your patient wine, porter, meat, and fresh air every day, with the warm bath, and should there be strength sufficient, the cold bath is very efficacious. I would use the cold shower bath. Frequently the disease is syphilitic, and although the body is feeble you find it necessary to exhibit mercury, as well as to employ tonic remedies. But although you exhibit mercury, that should not prevent you from strengthening the patient as much as possible. It is often good practice to allow wine, porter, and plenty of meat; and give tonics, wine, and bark, while you exhibit mercury. Now and then they may be alternated.

There is a disease nearly similar ecthyma, indeed it appears to me exactly the same. BATEMAN places it in the order vesiculæ, merely because the disease is serous, instead of being pustular. RAYE places it, because the vesicles are large, in the order bullæ. They take place under the same circumstances, the secretion soon becomes purulent, and after a lapse of time, there are the same large black scabs, and no one could tell whether the affection be rupia or not. It would be consistent to make two diseases of these. I am confident that rupia is nothing more than ecthyma,—that rupia and ecthyma, are varieties of the same affection. I wish you to recollect, that, ec-

thyma sometimes commences with serum ; and that it soon becomes thick and turbid. Here is another reason for making the two diseases the same. In rupia there is frequently a scab, which becomes conical, exactly the shape of those shell-fish which stick to the rocks, and that form of it is called *R. prominens*. In ecthyma there is frequently the same occurrence ; the scab will assume exactly the same appearance. The treatment of the two diseases is exactly the same. Although RAYER finds fault with WILLAN for subdividing these affections, yet he is over minute himself. The disease will occur in little children, particularly if they have been thrown out of health by measles or small-pox ; and sometimes it will even occur after cow-pock. You will observe that the vesicles are circular, with inflammation around, and they leave a black scab. They occur distinct too, just like the pustules of ecthyma, and you find they are globular, only that the contents are watery. Where the disease has been purulent from the beginning, I have seen dark scabs. Rupia, too, is as frequently syphilitic as ecthyma, and as frequently require mercury.

When this affection occurs in adults, they require support ; and sometimes you will have to exhibit mercury. With respect to local applications, I have never seen them do any good. You should keep the parts clean ; and when the scales come off, it is well to use a dressing of oxide of zinc, or ung. hydrargyri.

I would place ecthyma and rupia together, as I would place lichen and strophulus, erythema and roseola ; and I would make no distinction between the order of vesiculæ and bullæ. I would make some one word to signify all the diseases, from the size of a millet-seed to that of a hen's egg. There was a man in St. Thomas's Hospital, with a syphilitic complaint, who had one of these pustules on his arm. It is a very common affection. There are two kinds of rupia—*R. simplex* and *R. prominens*.

PORRIGO.

This disease is also a chronic affection, and is of a contagious character. The two preceding diseases, impetigo and ecthyma, together with rupia, are perfectly free from contagion. In porrigo the pustules are different from what they are in those other two diseases. In impetigo they are little pustules, and flat ; in ecthyma they are large globular pustules—phlyzacia ; but in porrigo, or scald head, they are small, with pointed tops, or large and flat, that is, they are either favi or acores. If you look at the scald head of a child, when there are pustules you will find them exceedingly small, with pointed tops—therefore they are acores ; or large and flat—therefore they are favi. The disease is contagious, not infectious. It is commonly caught by children sleeping in the same bed, rubbing their heads upon the same pillow, or wearing the same night-cap. Frequently it is caught at schools, by children putting on each other's hats or caps. I have no doubt that many diseases which occur in the head are called porrigo that are not. I think that many cases of eczema are called porrigo. It sometimes occurs in distinct patches—studs of it—and it is then called *P. scu-*

tulata. Now and then it occurs with a great deal of inflammation, and in distinct pustules, not clustering together so much; and these being favi, it is called *P. favosa*. Sometimes it has dry laminated scabs, of a yellow-whitish colour, containing a white scaly power; and, from their resemblance to lupin-seeds, it has been called *P. lupinosa*. In this form of the affection the pustules are often very dry; the patches are full of hard grains, which are found to contain a great deal of lime; an earthy secretion takes place. When you see an eruption occurring in the head, of a pustular kind, lasting some time, you may be almost sure it is porrigo; but if you ascertain that there are small pustules (acores), or that they are large and flat (favi), then you may be sure of the nature of the disease. It is said to occur in other parts of the body. Impetigo, eczema, and ecthyma, are common enough on the extremities; but porrigo is much more particularly found on the head. It is one of the most contagious of cutaneous diseases. Drinking out of the same mug, or giving a kiss I think would communicate the disease.

Porrigo takes place far more frequently in children than in others, and it sometimes disappears of itself, when it is supposed that it has yielded to medical means. It continues for a certain time and then declines. Some diseases which are common in infancy, gradually disappear as the subjects who labour under them grow older, and porrigo is one of these. I have however seen persons labouring under scald head who had attained their twenty-fifth year, and who declared they had been affected all their lives. BATEMAN mentions a variety under the term *P. furfurans*, where there are no pustules, but you find there laminated scabs. I believe this is nothing more than eczema, nor do I think it all contagious.

This is one of the most obstinate diseases you can meet with. You frequently have great inflammation, and on placing your hand near to the patient's head, you will feel great heat, and you should premise your treatment, by antiphlogistic remedies, by drawing blood from the neighbourhood of the head, and by applying cold water. These means are useful only to a limited extent. You will sometimes find mercury of great service, Dr. PLUMMER'S pill obtained its notoriety by curing a disease of this description. He gave some common form of mercury first, but the patient getting no better, he mixed it with a little guaiacum and antimony, and the patient got well. I much doubt whether this pill has any efficacy beyond an equal proportion of calomel, at any-rate I do not think that a grain of guaiacum can make any difference in it. With respect to antimony, I believe that unless it causes nausea, it is not worth the name of medicine. I have made comparative trials of calomel, and PLUMMER'S pill; but I never found the latter superior to the former. Mercury is often useful as well as sarsaparilla and things of that description. As to external remedies besides antiphlogistic measures, astringents are useful, oxide of zinc, and calamine. Should there exist but little inflammation, you find tar ointment united with that of nitrate of mercury serviceable; and now and then, an ointment of the red oxide of mercury. These stimulating applications are frequently very effica-

tious. I have seen cases cured under the use of *cocculus indicus*. It is used to destroy vermin in the heads of children, and if you put a drachm to an ounce of grease, you have a stimulating ointment which is often extremely useful. A wash of the sulphuret of potass is sometimes found advantageous in this affection. But when there is no great degree of inflammation present, tar, and citrine, ointment, are among the best remedies. The head should of course be shaved closely and kept clean.

PORRIGO DECALVANS.

This disease will take place without any eruption, so that we have an affection classed with those which are pustular, and in which nevertheless, there are no pustules, but this inconsistency cannot be avoided. Here and there the hair will drop off in patches, leaving the surface smooth, and this disease is said to be contagious. It is a common affection, and is termed *P. decalvans*. It is very common in the West Indies. I have seen children from thence who had the disease. It is said to spread like other forms of porrigo. There may be a doubt whether this should be termed porrigo, the skin is smooth, and I am confident, in many cases, this is the entire disease. Here is baldness without any reference to pustules, vesicles, or an inflammatory affection. Now and then the whole head will be bared in this way. I had a little patient whose head was becoming smooth all over, I could do nothing in this case. I should recommend you to use red oxide of mercury and remedies of a similar description; treat it in fact as you would do any other form of porrigo. By applying stimulating applications, the hair will at last grow, some say there is no doubt but this disease is contagious; but I have not seen a case. It is by no means uncommon, but like all other forms of porrigo, it will cease after a time. In the various other forms of porrigo, where there is a scab, in order to employ the ointment with effect you should put plenty on; and when you have softened the scabs, you must have them taken off. You should, however, have them softened as much as possible at first, and for this purpose a poultice is frequently necessary.

To show you how very contagious these diseases are, I may mention that a barber had a child with a scald head, and he kept a razor specially for shaving it. One day by mistake he shaved himself with it, and although he had washed and stropped the razor well, and had put it into hot water first, yet the disease came out upon his chin about a week afterwards. I saw it distinctly. Small circular pustules came out. You must strongly impress upon the minds of people the necessity of a child's dress being kept isolated in this affection, lest the disease should spread.

These I may say are all the chronic pustular diseases; and those which I mean next to speak of are acute, and occur but once during life. Such as chicken-pock, cow-pock, and small-pox. It is now believed by a great many, that the two latter of these affections are one and the same; and some go farther, and think that even the chicken-pock is only a modified form of it. However that may be,

these diseases are all exceedingly similar, so far as they are pustular, so far as they are all highly contagious, so far as they are acute diseases, and for the most part occur but once during life.

LECTURE XLI.

CUTANEOUS DISEASES—SMALL-POX.

THERE is a very important pustular disease to which I shall now direct your attention, called in English *small-pox*; but in medical language *variola*. The term is, I believe, derived from the word pock, or pox, and is of Saxon origin, and comes from the word *poc-cadl*, which is derived from the word pocca, a bag or pouch, or *pochcha*, meaning the same thing. The term *small* was added to it in the third, or fifth century. I presume to distinguish it from the *great* pox. Some etymologists say it is called *variola*, from the word *varius*, spotted or else that it comes from the Latin word *varus* a pimple. The disease is called in Spanish *viruelas*, and some derive this from the Latin word *virus*. Mr. MOORE has written an admirable history of small-pox, and cow-pock; in which he states, that the word *variola* was first found in an old Saxon chronicle, ascribed to MARIUS, Bishop of Vaux in Switzerland, who says that a violent malady broke out in Italy and France in 570, attended with purging. This disease before the eruption appears, is marked by certain premonitory symptoms. The patient first of all is generally seized with drowsiness, vomiting, pain of the head and loins, just as might take place in any other fever, there is the head affected, drowsiness, and langour; here is the stomach affected, vomiting, and here are the loins affected, which almost always occurs in common continued fever. There is pyrexia, universal feverishness, quickness of the pulse, and also tenderness of the epigastrium; but the pain in the loins, and the tenderness of the epigastrium are frequently most intense, being very marked in this affection. When these symptoms have continued for a day or two, there appears, about the third day, first, on the face, then successively throughout the body and extremities, small red spots—*papulæ*, and these rise into elevated pimples; and again into tubercles. These pimples become pellucid, and on the fifth day, reckoning from the first attack of feverishness, they become pustules; from being pellucid, they have purulent contents, opaque, and white, and those which are large, are at first usually depressed in the centre. They are not perfectly filled at first, but are filled in the circumference more than in the centre. When this eruption is occurring in the adult, there is often a great tendency to profuse perspiration; and should the patient be a child, there is a tendency to epileptic fits. Some assert, that one fit indicates a mild affection; but several indicate a severe attack. However, if the patient had no fit it would be better.

On the eighth day—counting always from the first—if there be much eruption, the face swells from the inflammation. If the disease be pretty severe, the cellular membrane beneath falls into more or less

irritation, and secretes abundantly, so the face swells on that account: the same circumstance causes the eyes to close, and the continued extension of the irritation causes the mouth to run, and the fauces to inflame. On the eleventh day the pustules are at their height, as full and as numerous as they will be; and the swelling of the face, the running of the mouth, and the inflammation of the fauces subside; and then the hands and feet swell—first the hands, and afterwards the feet. You perceive that the irritation has diminished above, where the disease first appeared, and has extended below. The spots spread down the body and arms towards the hands and feet; and as these parts suffer the last, so they swell the last; and when the swelling commences, the irritation has already begun to subside in the parts originally affected. The pustules are then said to mature—they grow ripe and perfect. When this general supuration has occurred and the formation of pustules is perfect, then again a fresh attack of feverishness occurs, and this is called the *secondary fever*. That which occurs in the beginning, ushering in the disease, and continuing for a little time, lessens when the eruption comes out, and is called the *primary fever*: and when the eruption has gone on for a certain number of days, and the general irritation is lessened, then, at the perfection of the eruption, when all the pustules have attained their full developement, and each pustule has become filled with matter, and is of its full size, a second attack of feverishness takes place. When the pustules begin to diminish, and the matter to be absorbed, the poor people call it *the turning*, and the meaning of this is, that the pustules are subsiding.

The pustules on the extremities, as I have said, appear later than those on the face and trunk, and their contents are more limpid: there is not that excessive inflammation which produces pus, but only a puriform fluid—a limpid fluid rather than perfect pus, and in them the fluid is frequently absorbed altogether without any exudation occurring. In the other pocks, throughout the body and the face, the matter very frequently exudes; but those upon the extremities, particularly the hands and feet, lose their contents entirely by absorption, so that the elevated cuticle remains flaccid and empty. I need not say that those pustules which are on the extremities, coming out last, “turn” last. The pustules, too, when the matter escapes, generally dry into hard scabs; the matter exudes, a scab is formed of this dry pus, and frequently a little ulceration has taken place, so that a pit is left. The secretion is not merely superficial and cutaneous, but ulceration of the cutis takes place, and even of the cellular membrane underneath, so that marks are left. These pustules are nothing but so many minute abscesses, and of course there is more or less destruction of the parts, and a cicatrix is left on a small scale. Should many of these run together, then a person is said to be *seamed*; there are whole tracts of loss of substance. From the inflammation which affects the eyes, there is not unfrequently in the violent form of the disease albugo left, or staphyloma. Pustules frequently form around the eyes, and on the cornea itself, and there is often ophthalmia; and where there has been a pustule on

the eye, it is common to have albugo, and even staphyloma. When the disease is over it frequently leaves scrofula; persons may have enlarged glands of the neck, or they may have enlarged mesenteric glands, or you may have phthisis. Frequently it leaves rupia and ecthyma; diarrhœa too is not unfrequently left after it, and the mucous membrane of the intestines sometimes falls into chronic inflammation.

The days on which the changes take place, are first according to the tertian type, and then they assume the quartan type. The day on which the disease begins is the first day; then on the third—that is according to the tertian type—the pustules make their appearance; then, still according to the tertian type, on the fifth day perfect pustules are formed. The eruption begins as a little spot; this is succeeded by an elevation, which afterwards becomes hard, and this contains something limpid; and then, on the fifth day, the contents become perfect pus. From that time the quartan type commences; it is on the eighth day, if there be much eruption, that the face swells, the eyes close, and the mouth runs; and on the eleventh day the pustules are all at their height. This disease is divided into two varieties, one is termed “distinct,” the other “confluent.” In the former, the pustules do not touch each other, the pyrexia or feverishness is of an inflammatory nature, attended by a pretty strong pulse, and great heat of body. The pustules are comparatively few in number. There may be only one, two, three, six, or twelve; but if there be a larger quantity, they are detached. They look healthy, and have a rose-coloured base, exhibiting a healthy inflammation, their contents are good, laudable, praiseworthy pus. In this form of the affection the fever decreases when the eruptions occur, and when it is complete, the feverishness is nearly gone. The disease is perfect but mild. In the other form of the affection termed *V. confluent*, the pustules are very numerous, and run together, the feverishness is violent, and is rather of a typhoid character, the pulse is not so strong, the patient is very weak; and there is delirium. There is frequently such a violent affection of the head, that it produces coma, and the eruption sometimes begins early, perhaps on the second day. The pustules are far more numerous and smaller, they are not well fed, well developed, or well formed, but they are flaccid, and not filled as they should be. Instead of containing a creamy laudable pus, the contents are brown, perhaps thin and serous, or they contain a brownish ichorous fluid. They not only run together, but in consequence of not being well filled, they appear more or less flat. The feverishness is very little decreased on the appearance of these pocks; and at the conclusion of the eruption, it is aggravated exceedingly—secondary fever of a violent character comes on. The symptoms occurring in other parts, are very severe, there is much more ptyalism, much more running of the mouth, and much more inflammation of the fauces than in the *distinct* form. In infants, there is sometimes violent diarrhœa, and the lower part of the alimentary tract suffers great irritation. There are too, petechiæ, vibices, and ecchymoses between the pustules; there are in short,

red, dark-coloured spots of various sizes. Now and then there is bloody urine, and sometimes blood appears in the motions. There is a very great stench, the secretions are unhealthy, and there is an exudation over all the body. Sometimes persons labouring under this form die rather suddenly. V. *confluens* for the most part leaves such direful consequences, such as blindness, phthisis, and diarrhœa, the last of which, terminates in ulceration of the intestines. Some assert, that negroes generally have a horny, warty small-pox, the eruption being minute in size, that is to say, fibrum is effused into the pocks, which gives them this appearance. This disease similar to measles, and scarlatina, may be had more than once; and it has been known to occur simultaneously with measles and cow-pock, and it has existed conjointly with them in the same person. Mr. JOHN HUNTER asserted that no two specific diseases could exist at the same time in the same body, but this was erroneous. We perceive persons labouring under itch and syphilis at the same time, and there are numerous cases of small-pox co-existing with measles and cow-pock, though in general, one disease runs its course in the frame, and then the other. It is stated in the Edinburgh Medical Commentaries, that measles and small-pox occurred simultaneously in sixteen children. Forty-three were inoculated, and sixteen were at the time labouring under measles, and both the diseases went on together.

In most instances, the cause of this disease is a specific poison, generated by an individual labouring under the affection. Children are attacked without there being any possibility of tracing the infection; but for the most part, we can do so. The disease is infectious as well as contagious. It can be communicated without touch, and being near a patient affected is quite sufficient to induce the disease. There is one reason for thinking that it always arises from another person labouring under it, and that is, in Denmark the disease disappeared for many years, by practising vaccination on every individual; but the inhabitants grew careless, and being visited by persons labouring under the affection, it again broke out. If however, the two diseases be the same, the argument falls to the ground; if the cow-pock be merely modified small-pox, then these are merely instances of the disease occurring but once.

Nearly all persons are liable to take the disease—that it is hardly right to say that a predisposition is required. From the few there are who escape if the poison be applied, it is a better mode of expression to say, with regard to those who will not take it, that they are *indisposed* to it, than to say that they are *not predisposed*. The only thing wanted is, the absence of an indisposition. Persons have been known to escape this disease for forty or fifty years. The same circumstance occurs with regard to hooping-cough and other contagious diseases. It is supposed that the predisposition is strongest in early life; but this is hardly proved, because most persons take the disease, if they have not had the cow-pock, in infancy or childhood, and therefore there are but few adults left to have it. Similar to syphilis it may occur in the fœtus. The mother may give syphilis to a

child in utero, and also the small-pox, and in the latter affection it is singular that the mother may communicate it to the child without having it herself. Dr. JENNER mentions in the first volume of the *Medico-Chirurgical Transactions*, instances of two women who, when pregnant, were exposed to the contagion of small-pox a few days before delivery. Both women were, I believe, exposed to it by infection; but one woman had had the affection formerly, and therefore she had acquired immunity; and the other had been inoculated so that she also had acquired immunity. Neither of the mothers had the disease a second time, and therefore they served merely as transmitters of the poison to their children. In the one instance the disease appeared in the child on the seventh day after birth, and the other female brought forth a child covered with the small-pox. Dr. MEAD in his *Treatise on Variola*, mentions a similar fact. However, this has not always been the case, for Sir GEORGE BAKER mentions that two women, who took the disease during pregnancy, brought forth children perfectly healthy, and they never had it till they were inoculated, which did not take place till they were three years old. I do not know whether a woman can give syphilis to a child without the disease affecting herself—whether she can have the poison conveyed to her system by a man, and yet have no symptoms of the disease, and nevertheless produce a child affected with syphilis. In my experience, wherever syphilis has appeared in a child at its birth, or soon afterwards, the mother has shewn syphilitic symptoms either then or soon after. It is, however, to be remembered, that we have no immunity from syphilis. We have immunity from small-pox and cow-pock, in consequence of the disease having occurred previously; and when immunity can be produced from a poison, then you see that the system may transmit it, being yet perfectly safe itself. As to the period at which the disease appears after exposure to the poison, the late Professor of Botany in Edinburgh (Dr. RUTHERFORD) used to say that a party of soldiers were exposed to it in the natural way, and that the interval between their exposure and the appearance of the disease varied from twelve to fourteen days. Dr. FORDYCE, who paid great attention to this subject, said that the period which I have now stated was the common interval: however, it is sometimes certainly known to come out earlier.

Similar to other infectious diseases, it is very frequently epidemic; and it is more frequently so at the vernal equinox than at any other time. Sir GILBERT BLANE says it resembles measles and whooping-cough, in being more fatal during an epidemic than at any other time. After it has been absent some time, it is also more severe than at other periods. It is also observed to be like all other epidemics in another respect; those who have it first, have it the most severely.

It is said that, by the ancients, this was not known to be a contagious disease; and, indeed, they confounded measles, scarlet fever, and small-pox together. RHAZES, an Arabian, and one of the oldest writers on the subject, ascribes it to the fermentation the blood undergoes when the youth is becoming a man. SYDENHAM, had no idea that it was a specific contagion. He thought that scarlatina was most

prevalent in the autumn, and he ascribed it to a moderate effervescence of the blood, arising from the heat of summer. He entertained much the same opinion of measles and small-pox. ETMULLER states, "it is not probable that those who assert that measles and small-pox arise from copulation after conception has taken place are correct, and therefore I suppose that the foundation of measles, and small-pox, lies in the milk which the child takes first when in utero, and then afterwards when born." BOERHAAVE declared it to be contagious. No one now doubts that it is contagious; yet its spread is greatly influenced by certain states of the atmosphere. Intense cold will check an epidemic small-pox. The wind called "harmattan" stops small-pox just the same as plague, and it is asserted, that it prevents the effects of inoculation. SIR JOHN PRINGLE states that the small-pox was carried by some troops on one occasion to the camp, but in consequence of some peculiar state of the atmosphere, it would not spread by contagion. VAN SWEITEN and Dr. ODIER mentions a similar fact. SIR JAMES MACGREGOR states that when the disease was prevailing extensively at Bombay, in the vicinity of his barracks, and the surrounding population, yet not one person about the barracks caught the disease, although there was the freest communication between the soldiers and the people. BURKHARDT states that small-pox was never known to visit the Wadykenous, a narrow shore leading from the cataract up to Korosko. Yet it was well known at Derr, a place a little distance off. When we therefore, are deciding whether the disease is contagious or not, set no value on the circumstance of certain states of the atmosphere putting a stop to it. Contagious diseases in this respect are in the same predicament as those which depend altogether upon atmospherical influence. That it is a contagious affection cannot be doubted when you reflect that it will continually occur in children if their parents will not permit them to have the cow-pock.

LECTURE XLII.

CUTANEOUS DISEASES.—SMALL-POX

Is communicated artificially by inoculation, because the disease which then arises is much more mild than that which occurs naturally. The effect of this, is to decrease the number of pustules, and thus lessen the general violence and duration of the affection. Inoculation produces the disease with a far smaller number of pustules, and less general irritation, whereas, if a person have small-pox after vaccination the disease goes on in the usual way for a certain time, and then all at once, the feverishness ceases, and there is rapidly an end to it, on the sixth instead of the eleventh day. It is communicated much more quickly by inoculation than when it is communicated naturally. It usually appears on the seventh, or at the latest, upon the eighth day when communicated by inoculation, but when it occurs from infection it is generally from the twelfth to the fourteenth day before it appears. You may by inoculation be beforehand with infection. Should a person have been exposed to the infection of small-pox, and

has a great chance of having a severe disease, it is proper, if you do not vaccinate, to inoculate him directly, because, you then produce the disease more quickly, than it would otherwise occur. The *artificial* gets the start of the *natural* by this means. Dr. FORDYCE says that the quantity of matter applied, greatly influences the severity of the affection; that if you introduce a small portion of matter, it produces a milder disease, than if you introduced a large quantity. You should only introduce just sufficient to produce the disease. A different rule must be observed in cow-pock, because, your object in that case, is, to produce the affection as complete as possible; therefore a considerable quantity of matter must be introduced. You must make *several* insertions. Your object in small-pox is to have the disease as mild as possible and therefore the smallest possible quantity of matter is to be introduced.

The fact of inoculation rendering the disease milder, appears to have been communicated to the Royal Society of Edinburgh in the eighteenth century, and the knowledge of it to have been brought to England from Constantinople. The knowledge of this fact is said to have existed in China and Hindostan for a great number of years. The Chinese were in the habit of placing the crusts taken from small-pox patients in the nose, having first frequently kept them in jars for some years; sometimes they reduced the crusts to powder, and made the children snuff them up;—this was called *sowing the small-pox*. The Brahmins are in the habit of scratching the surface of the skin, and then binding upon the scratch a piece of cotton moistened with the pus. It is said that a particular caste has the charge of this practice. They, however, prepare the patients for this process by some months' abstinence, from even milk and butter—and this would be pretty low diet, they having no animal meat at any time. This mode of inoculation appears to have been long practised in Persia, Armenia, Georgia, and Greece, but its origin is unknown. Some imagine that it arose in the deserts of Arabia, where there were no physicians or priests—nothing but old women, the knowledge of the fact being acquired by the vulgar. However, the practice appears to have been known an immense time in the provinces of Italy, in France, Germany, Sweden, Denmark, and even in Great Britain, among the peasants. In the north of Scotland the people were in the habit of giving the children the disease by putting them to bed with others labouring under the affection, or tying threads soaked with pus upon their wrists. Dr. TIMONI wrote to Dr. WOODWARD on the subject from Constantinople, and the letter was published in the Philosophical Transactions the year after. PYLARINI, a physician, also wrote on the Turkish practice, and sent his communication home in 1715, and this was likewise given to the public in the Philosophical Transactions. Lady Mary Wortley Montague was at Constantinople with her husband, who had been appointed ambassador to the Ottoman court, and she there learned the practice, and being a courageous woman, tried it, with success, on her own son. On her return to England she had her daughter inoculated. Caroline, Princess of Wales, wished to have her children inoculated, but was desi-

rous that the experiment should first be made on six felons in Newgate. She obtained the consent of George the I. and the operation was performed. Five of the felons did well, but the sixth did not take the disease, having in fact previously had it. In the first eight years, eight hundred and forty-five persons were inoculated, only seventeen of whom died : at Boston, only one out of forty-five. Inoculation was almost disused in England from 1730 to 1740, and in France it was absolutely forbidden. Inoculation caused a great loss of life ; but it saved the lives of a great part of those who were inoculated, but it kept up the pestilence to such an extent, that far more caught it than otherwise would have done so, and it increased the general amount of the disease. A planter, at St. Kitt's, is said to have inoculated three-hundred of his slaves himself, without having lost one. Of course the disease was also kept up by so many being inoculated. Great fury prevailed against it, when in 1754 the London College of Physicians published a declaration in its favour.

Inoculation, however, met with but slender success till SUTTON's time ; he used purgatives and succeeded wonderfully, so that he spread inoculation more than the College of Physicians and all the doctors together. SYDENHAM practised free ventilation and refrigerants ; but SUTTON omitted the opiates which SYDENHAM was in the habit of giving, and gave calomel and tartar emetic. SUTTON also restored the Turkish practice of making only a slight scratch with a lancet. Medical men ceased to have recourse to it, but quacks took it up, and endeavoured to get money.

When inoculation was first practised, it is said that only one patient out of fifty died ; but now, not above one in two hundred die, and some have calculated not more than one in five hundred : whereas the mortality from natural small-pox was as much as one in six, where medical aid was rendered, and where there was no medical aid the mortality was frightfully great ; and, in fact, at one time nearly all died where medical aid was not resorted to. The annual deaths from small-pox in England, during thirty years of the last century, were from 34,000 to 36,000. Before vaccination was practised, and after inoculation was established, one child in seven, throughout Russia, is said to have died from small-pox ; whereas Spain, which did not trouble herself about inoculation, suffered far less than any other country, the disease having been kept up in others by inoculation.

TREATMENT.

The greatest cleanliness should be observed ; clean linen, and mild antiphlogistic diet will be proper—at least in the first instance. There is no harm whatever in cold or tepid ablution, provided the body is hot. Some say that they have stopped the disease by affusion ; but you may have recourse to tepid ablution if there be any objection to cold ; and it would be proper to wash the patient with a solution of the chlorides, and use them freely around the room. The head is sometimes so much affected that general bleeding may be premised in the case of adults ; or at any rate the application of leeches to the temples. The pain in the joints, which characterizes

the disease, generally goes off very soon. The bowels should be kept freely open. But after a time, if debility come on, especially if the patient's pulse become weak, or if the pustules be not well filled, and there be no violent local disease; if, in short, there be any signs of debility, and of the disease assuming a typhoid type,—then wine and stimulants should be given. SYDENHAM was in the habit of giving opium at first, but I think in that respect his practice was bad. You may consider that, in confluent small-pox, when the patient is covered with pustules, such an immense number of little abscesses are equal to one large one. There is universal suppuration of the surface, and the patient requires to be supported just as he would in the case of a common abscess. It is frequently necessary, too, towards the close of the disease, to give wine, ammonia, and sulphate of quinine, with good nourishment. But there may be, on the other hand, such sharpness of the pulse, and such general irritation, that measures of this nature are improper; and you must be contented with giving the patient, perhaps, no more than milk or whey, and keep him cool. Some have advised the letting the matter out from each pustule: you might do this with a needle; and it is said that there is some utility in the practice. Any inflammation that may occur, whether in the head, eyes, bronchiae, or intestines, requires to be attended to. You must be constantly observing these affections, but the treatment must be conducted on general principles. You have only to recollect, that you are treating, not merely an inflammatory, but a specific disease—an affection attended by suppuration on the surface. Among the internal affections of the mucous membranes, that of the larynx and trachea frequently suffer greatly, being completely blocked up. Should you direct your attention to the larynx of those, who have died of small-pox, you will find it filled with a thick tenacious mucus, and it will be much swollen. I am confident that many children die of small-pox, from the larynx being thus obstructed. This is a point to which Mr. ALCOCK has particularly directed his attention. I have often examined the larynx of children who have died of this affection, and I have been surprised at the state of that organ. There has been great inflammation and such effusion of thick stuff, as nearly to block up the passage.

LECTURE XLIII.

CUTANEOUS DISEASES.—VACCINA.

Drs. WILLAN and BATEMAN place the disease in the order vesiculæ, viz. the cow-pock; but although there are only vesicles at first, the contents become so turbid, that at last there is genuine pus. I think it much more consistent to place it the same order with small-pox. There are those who consider that cow-pock is a modification of small-pox—to be merely the small-pox modified by passing through the cow. There can be but little doubt, that small-pox is a disease, which cows and other brutes may have. Experiments have been made in order to ascertain this point. Clothes have been taken from patients labour-

ing under small-pox, and placed on cows, and they have had the disease termed "cow-pock." If the disease be really small-pox, modified, we then perceive nothing surprising in the circumstance of it generally affording immunity from that affection, to those who have it. Cow-pock is by far the mildest, and it is strictly a contagious disease. It cannot be communicated by infection as small-pox, it is only communicated by palpable matter. The disease given artificially, commences a few days after the matter is introduced. By a slight scratch, or by a wound of any kind, a small transparent, pearl-coloured vesicle is formed, with a circular, or somewhat oval base, the upper surface being more elevated at the margin than at the centre, till the conclusion of the eighth day, the margin itself being red turbid, shining and roundish, so that it often extends a little over the line of the base. The vesicle contains clear lymph in little cells, that communicate with each other. About the eighth or ninth day it is surrounded by an areola, varying in diameter in different cases from a quarter of an inch to two inches, and is usually attended with a considerable tumor, and hardness of the adjoining cellular membrane. The areola declines from the twelfth day. The surface of the vesicle then becomes brown in the centre, and the fluid concretes into a hard round scab. The colour afterwards becomes black, and it may continue so for two or three weeks. There is left a *permanent cicatrix about four or five lines in diameter*, the surface being marked by pits, denoting the number of cells, of which the vesicle has been composed. The vesicle is formed about the sixth day after the insertion of the virus; about the seventh, or eighth, there is an inflamed areola, a swelling and hardness, and on the *eleventh* day, all the symptoms decline. The vesicle then becomes muddy and darker. Should there be any pyrexia of the system, it takes place about the *eighth* or *ninth* day. Sometimes the affection has not appeared for two or three weeks after vaccination, and then, the disease has suddenly appeared, inflammation has occurred and the affection has gone through its regular process. If there be a violent degree of inflammation, or should the disease vanish too rapidly, or if there be any variation from its proper course, you must not imagine that any security is given from the small-pox. If, on the one hand, there be too little inflammation, so that the affection soon subsides, and no genuine vesicle is formed; or if, on the other hand, there is too violent an inflammation; then, in either case, you may doubt whether the disease will be of any use. If the cicatrix, after the disease has appeared to go through its stage properly—if there be not a permanent cicatrix about *five* lines in diameter, a little depression with very minute indentations—you may then suspect that the disease has not been perfect. In the case of all contagious diseases, you may have a disease of the greatest mildness or the greatest severity. A contagious disease will not only vary as to the time at which it appears after the virus has been applied, but it will vary as to the time in which it goes through its course, and it will vary as to its degree; so that the plague will sometimes occur with only a slight indisposition; and we continually see gonorrhœa so mild as to last only twenty-four hours; whereas, in other cases it will be

so severe as to last some weeks. This general fact is strikingly shewn in cow-pock: you continually have it die away from the disease not being fully formed, and, on the other hand, you sometimes have it so very violent that the whole course of the affection is disturbed.

Nothing should occur for twenty-four or perhaps forty-eight hours; and then there should be a little irritation: a vesicle ought to be gradually formed; on the seventh or eighth day there should be an areola, and all the symptoms should decline on the eleventh day. When it is all over, you ought to see a dark and hard scab for two or perhaps three weeks, and then a permanent cicatrix should be left, with little indentations arising from the cells of which the pustule has been composed. This disease in the greater number of cases, gives immunity from the small-pox; and where it fails, which it frequently does, the small-pox is, in the greater number of instances, milder than it otherwise would have been. In general, when that disease occurs after cow-pock it suddenly stops; it is ushered in by great pyrexia, and then, about the sixth day, it suddenly declines. Some patients die of the small-pox after they have had the cow-pock. At first it was imagined that cow-pock was a certain preventive of the small-pox; however that was a hasty conclusion: because it prevented the disease for a certain time, and in the majority of cases, that afforded no solid basis from which to infer that it would prevent it in all cases, and for the rest of life; further experience was necessary before such a conclusion could with propriety be drawn. But we may now safely assert that a great number of persons who are vaccinated escape the small-pox; and where persons do not escape, the greater number of them have the disease very mildly. This affection produces only a single vesicle or pustule; it does not produce a number all over the body as small-pox, and other pustular diseases do. As it is very desirable that the disease should be fully formed, and the constitution thoroughly affected by it, it is the practice to make several insertions of the matter, perhaps two in each arm. The arm is as convenient a place as can be chosen, and it is usual to make two wounds in it. The lancet should be held so that the matter may gravitate into the wound. There is no treatment required in this affection, excepting a mild aperient.

Dr. JENNER in 1768, when an apprentice learned by report that the cow-pock on the hand of milkers prevented them from having the small-pox; and he very frequently had to dress the hands of such persons. He satisfied himself that the ulcers dressed were derived from the teats of cows. He learned too, that it was very well known in that part of the country, among the peasants, that persons who had these sores upon their hands never were affected with small-pox by inoculation. Dr. JENNER came to London, and finally returned into the country and there he settled. He then recommenced his enquiries. He found a great number of persons insusceptible to the small-pox after they had had the cow-pox. However he found exceptions, and he discovered that some who had been affected with these sores arising from cows, yet subsequently they had small-pox. There were all sorts of sores arising from cows teats, which were communi-

cated to those who milked them; but there was only one genuine cow-pock. Cow-pock is only contagious, not infectious, and it is said to have once ceased, so that Dr. JENNER could not obtain matter to make experiments. The cow-pock broke out on the scratched finger of a dairy maid, from which Dr. JENNER vaccinated a boy, and regular cow-pock was produced. He took the virus from a human subject, and also produced the disease. Dr. JENNER amidst much senseless opposition, communicated his knowledge to others; and it provoked just the same ridicule, which had been excited against inoculation, when it was first made known. All manner of absurd objections were invented against inoculation, which were the result of deep rooted prejudice and gross superstition. A surgeon of Bartholomew's Hospital (before clinical lectures were delivered in that institution) gave gratuitous lectures against the cow-pock. It does not deserve all the encomiums Dr. JENNER lavished on it, for it is *not* an absolute preventive of the disease; but it certainly does prevent it in a large number of cases. Where it does not prevent the affection, it makes it much milder. There is another disease very much allied to these which is termed—

LITTLE SMALL-POX OR VARICELLA.

In common language it is termed chicken-pock or swine-pock. This disease is sometimes mistaken for small-pox, but in itself it is entirely unimportant. It commences as a vesicular disease, but there are continually some pustules. There are a smaller quantity than in small-pox, and for the most part they do not amount to more than two hundred. They run through their course with far greater rapidity than small-pox, and there is very little irritation of the system,—often none at all. It is now and then difficult to distinguish it from small-pox, but when you consider the disease has far fewer pustules, that it runs through its course with great rapidity, and with scarcely any disturbance of the system, there is no great difficulty in making the diagnosis, especially if you know that the child has had the small-pox before. Some say that in chicken-pock there is always cough. It is a contagious affection, with a little feverishness before the disease takes place; but in about six days the whole is over. Some declare that this disease is only a modification of small-pox; that it is only a milder form of the disease, called modified small-pox. After this disease I have frequently seen ecthyma and rupia take place, just as after small-pox and sometimes there have been scars, just as in small-pox. I had the small-pox myself, and was not pitted at all, but the chicken-pock came afterwards and left several pits; so that the disease occasionally produces pitting here and there the same as small-pox. Dr. WILLAN has given some representations of the disease, in his plates. It occurs in two or three forms; you see very small pustules; it is easily distinguished from small-pox by the disease being in its genuine character vesicular. Now and then, however, there are pustules, and there is pretty smart feverishness. The best description of this disease is contained in Dr. HEBERDEN'S Commentaries. It is important to know that there is such a disease, because people frequently think that their children are about to have

the small-pox when they are not. If the patient be scarcely ill at all and has a crop of pustules of this description, you may be almost sure that it is the chicken-pox which is about to occur. There never is, internal affection of any consequence when this disease exists. In very rare cases there is violent pyrexia, headache, delirium, and even convulsions; but they are all transient. There is not any severe affection of the larynx, of the bronchiæ, or of the intestines, as in many other cutaneous diseases. Those eruptions I shall now speak of are not placed by BATEMAN with pustular, but tubercular affections, because there is a considerable hardness of the skin. The fact is, however, that suppuration takes place for the most part in these affections, if they last long, and I therefore prefer arranging them with RAYER as pustular diseases. There is only this difference in them, that there is what may be called slow chronic pustules instead of acute ones—they are *blind* as people commonly say.

The first of these to which I will allude to is called by BATEMAN and WILLAN *acne*. By RAYER *couperose*. It is a disease exceedingly common, and not at all contagious, nor dangerous. It occurs particularly in young men and women, especially the former. Sometimes the face will be affected with this disease for four or five years. It now and then appears with little black specks in the midst of rather hard elevations, and then it is called *A. punctata*. Sometimes there is very great hardness, and it is thence called *A. indurata*. In the ordinary form it is called *A. simplex*, and is described by BATEMAN to be an eruption of small pimples, not very numerous, without much inflammation, the surface between the pimples being perfectly healthy; only that there is a little roughness of the face. It now and then occurs, causing the sebaceous follicles to be large and distinct, and marked with a black speck on the top, and then it is called as I have just said, *A. punctata*. By squeezing them, you force out what is called a *maggot*, but it is only the contents of the sebaceous follicles; and by continued squeezing, you may force out stuff as long as the follicles will supply it. It occurs almost solely in the face: it will take place in the neck but the face is its usual seat. Some people have a little of this affection, some have it very severely. Sometimes there are black specks, and sometimes there is a good deal of redness around them. Now and then it occurs with considerable redness and prominence of the skin around, so that you may discover each particular vessel, and from its redness it is called *A. rosacea*. You will see this in middle-aged and elderly persons; and in this form the maggots lie in a bed of roses. This is a very permanent complaint: I do not know that it is often got rid of; but, luckily, it does not occur till late in life.

Each of these hard inflamed pimples of the skin may suppurate. Some will subside after a time, and if they do not suppurate, it is an instance of termination by resolution, and we ought not the less to call it a pustular affection; because, if it pursue its course, should it not be arrested by something or other; it runs on to that end, and if it is not resolved, suppuration is the termination of it. When these pimples are small it is best to squeeze, and empty them of their contents, and the tubercle will, for the most part subside, and of course

if they suppurate the sooner the matter is discharged the better. I do not know whether internal medicine has any effect on the disease. I have seen great benefit arise from the application of stimulants. One of the best is the ointment of nitrate of quicksilver rubbed well over the part. This used to be called "yellow citrin ointment." This stimulates the affection which appears to be an inactive one. If you stimulate too much, cold applications should be used, to reduce the irritation. Now and then you find the ointment too strong, and should this be the case it is necessary to dilute it with simple spermaceti or zinc ointment. Some practitioners administer sarsaparilla, and nitric acid, also PLUMMER'S pill, I do not know if they are beneficial; but I think I have seen good arise from tar water. Those stimulating substances just mentioned are the best. I have seen the face swollen all over when they have been employed. Should there be any very great inflammation occur, this must be treated in the usual way. There is another disease which is seen in the face, but not so much about the nose, and those parts which have no hair; as on those which are covered with it. It occurs particularly in the beard, and from its situation it is termed—

SYCOSIS.

Occurring on the chin it is termed *S. menti*—about hairy scalp *S. capillitii*. The tubercles in this disease are not so hard as in *acne*, they continue for some time, and they are more inclined to suppurate. Shaving in this disease is a painful operation. These affections are merely slow chronic pustules—the disease is a very obstinate one. I do not believe that bleeding, local or general, will much relieve the patient, nor do I think mercury will, but, of course, there are cases where antiphlogistic measures are proper. I have observed it subside from the administration of iron, but, for the most part, all sorts of applications fail. It is ridiculous to call these *tubercles*, for there is simply inflammation; there is no tubercle, nor no organic change in the skin. *Acne* is a disease of the follicles, and it is often attended with extreme hardness, but *sycosis* is not so hard. I really do not know what treatment to recommend. I have been tired again and again in attempting to remedy the disease. This affection principally occurs in the beard it does not occur in women unless their ovaries begin to dry up, and they acquire the character of men. It does not take place where there is no hair. *Acne* is confined to the face at large, and *sycosis* only where there is hair.

WILLAN nor BATEMAN does not treat of those pustular diseases of which I am now about to draw your attention, but they are nearly all treated of by RAYER. There is one which is not spoken of by him. RAYER makes a distinct class of those diseases which are disposed to gangrene. Sometimes plague is attended by pustules on the skin, large ones, such as are commonly denominated:—

BOILS.

In these, there is a great disposition to gangrene. This is also the case in the disease termed pustule maligne—malignant pustules,

which are usually communicated from brutes. RAYER makes a separate class of these, but they are merely suppurations, and therefore they ought to be classed with the pustular diseases. Should the suppuration be considerable, not merely pustules; but a very large suppuration, it may only lead to confusion, to speak of them in that way; and you should recollect, that they are not mere pustules, but, that the cellular membrane is *principally* implicated and the skin only *secondarily*. Still, however, as the disease occurs on the surface of the body, it is as well to consider it as an affection of the skin. The most simple affection of this description is a sty of the eye; then a more severe one is boil, in which there is a disposition to gangrene; and then another is carbuncle—common carbuncle, in which, however, there is a strong disposition to gangrene. Not one of these are mentioned by WILLAN and BATEMAN; RAYER puts them together, and calls them diseases characterized by boils. A carbuncle is only a large boil, but it is of such an extent that surgical aid is necessary to let the matter out. He makes another sort which differ only in their tendency to gangrene, and these are malignant pustules, which he includes among the *inflammations gangreneuses*;—and the plague itself. To these may be added another, namely, the glanders of horses, which may be communicated to the human subject. The plague is a disease not confined to the surface; but, then, many affections called skin diseases, are not confined to the surface. Such is the case with small-pox: it is a general affection of the system, and involves the skin among other parts. Now the characteristic of these suppurations is a disposition to gangrene. In respect to all these diseases, whether small ones, such as sty and boil, or great ones, such as malignant pustules and plague, they bear the same relation to porrigo and bullæ, that those do to the small vesicles of herpes. I said that I thought it wrong to separate them; and so with respect to these, I think it a pity to make different classes merely on account of their size. Because small-pox and porrigo have small suppurations, and plague or carbuncle is characterized by a suppuration of large extent—more magnified, it is no ground for constituting a different class of diseases. You will recollect that they are merely pustular diseases with suppurations on a large scale.

THE PLAGUE

Is very similar to typhus and continued fever; but it so affects the surface of the body that I have thought it well to speak of it among diseases of the skin, as RAYER has done. It is, like many other diseases of the skin, an acute fever—as in the case of small-pox, for example. It is an acute fever, attended by headache, delirium, and a burning sensation of the epigastrium. Perhaps there may be great strength of body at first—the person may be of a full phlogistic diathesis—but great debility soon comes on, and very often there is debility from the first. Glandular swellings speedily appear in the arm-pits and groins, so that the disease is characterized by buboes; but the glands of the groins are more frequently affected

than those of the arm-pits. Sometimes these glandular swellings or buboes come on at the first, and sometimes not till towards the end of the complaint. Besides them, however, there are upon the surface vesicles of all sizes, the contents of which are frequently dark. There are upon the surface, boils, carbuncles, and vesicles; and between them, and even where they do not exist, there are often vibices, petechiæ, and ecchymoses. These petechiæ, it is said, will sometimes rise into carbuncles; where at first there was merely a little effusion or congestion of blood, there will at last sometimes be carbuncles: occasionally there is not sufficient power of the constitution—not sufficient strength of inflammation for carbuncles and buboes to arise. Just as in the case of the violent application of malaria, or the violent application of the poison of typhus fever, and also as in cholera, persons will sometimes die immediately, without any reaction taking place. It usually destroys life in from two to five days; but if a person survive the fifth day, recovery is generally expected. Most people die who are seized with this disease, even though they enjoy every advantage of treatment and comfort. It is said that the disease may be had more than once.

Some consider it a very ancient disease, the symptoms are mentioned by Hippocrates, and Dr. BANCROFT contends that the disease is mentioned in the Bible; that this was the affection under which the Philistines laboured when they are said to have been smitten in the private parts, after taking away the ark. He says that the disease spread as they carried about the ark—that it was a contagious disease, and the more they carried about the ark the more the disease was communicated, till at last it spread from Ashdod to Ekron. He considers that the Philistines probably received the disease from Egypt. Some consider, that, as the Philistines were smitten in the hinder parts, they were afflicted with piles; but Dr. BANCROFT contends that piles would not have killed them in the way in which they perished. However, I think there is this objection to Dr. BANCROFT's argument that it was the plague—if you read the book of Psalms, you will there find it said, that they were not only smitten in the hinder parts, but put to a *perpetual* shame; and therefore a chronic disease was left; but plague would not leave a chronic disease of that description. It is stated that from 50 to 70,000 persons were smitten by the disease. But whether Dr. BANCROFT be right or wrong, the symptoms were distinctly mentioned by Hippocrates. It is a disease that is almost always prevailing in the Mediterranean, at Constantinople, at Venice, and all the various parts of that sea. It has likewise prevailed at Marseilles, Moscow, and London.

There can be no doubt whatever of its being a contagious disease, but it is rarely communicated without contact. It is for the most part believed to be a contagious disease in the strict sense of the word; not infectious. One of the latest writers upon it (Mr. MADDEX), says, that if the air be close—if there be no ventilation, no cleanliness, and the emanations from the patient are very much concentrated—it may be communicated by infection; but if there be any ventilation at all, then it can only be communicated by contact with

the individual or something that he has touched. Some have denied, of course, that this disease is contagious; but there are proofs without end that it is. When the French army were in Egypt, about eighty medical officers died of it in one year. The next year they employed Turkish barbers to dress the patients and bleed them, and then only twelve medical officers died; and one-half the barbers died. It is said, that at Moscow, in 1771, all the assistant-surgeons were seized with it, amounting to fifteen, of whom three died; but the physicians, who did nothing but walk through the wards with a pen in their hands, generally escaped: the assistant-surgeons, however, were reduced to the same state as the barbers. At Marseilles there had been no plague for fifty years, till 1720, when an infected vessel arrived. The disease at that time was distinctly traced to the arrival of an individual from an infected spot; and half the inhabitants died in a short period after the arrival of the infected vessel. At Moscow, it is said that the plague had not been known for one hundred and fifty years, till they had war with the Turks, and two soldiers from an infected place arrived and died; after which, 80,000 perished from the disease in the city, and 20,000 in the neighbouring villages. In 1813, it is said that the plague had not been known in Malta for one hundred and thirty-seven years previously, and then the disease was brought from Alexandria. Howard says that the plague of London, which occurred in 1665, was conveyed to a village in the Peak of Derbyshire by means of some old clothes. He was so astonished at the absurdity of many medical men denying that it was contagious, that he writes as follows:—"Have not some of our professors sullied their names with the dangerous doctrine of the non-contagion of the plague? From no other cause than the error of the physicians, who constantly maintained that the disease then epidemic was not contagious, happened that terrible visitation which, in 1743, ravaged the city of Messina and its vicinity, with the loss of above 43,000 individuals in the short space of only three months." If you look into most writers you will find that persons who attended others labouring under the disease suffered, while those who ran away escaped it. The Turks are so satisfied of its being contagious, that when the disease prevails they shut themselves up, and the Pacha holds communication with no person whatever. There can be no doubt of the plague being contagious. Great heat and intense cold will stop it. It is a disease that will not bear great heat, so that it has never been known to occur in tropical climates; so that when the heat has arisen to a certain point, it stops. This takes place in Egypt about the 24th of June. The winter also causes almost a complete cessation of it, and frequently renders exposure to a person labouring under it perfectly harmless. From its being so contagious a disease, Dr. WELLS considered that it was owing to quarantine laws that we are not now troubled with this pestilence. He says that many persons ascribe our exemption from the disease to the fire of London; but he contends that the plague has not been known in London since 1665, whereas the fire did not take place till 1666. He says that the fire of London consumed only one-fifth of the town, leaving the Borough, Wapping,

Whitechapel, Clerkenwell, St. Giles's, and the purlieus of Smithfield, untouched, which were among the dirtiest places. He says, secondly, that Bristol has escaped for the same length of time as London, and yet there has been no fire in that city, and the improvements there began much later than in London. He then says, the Dutch are as cleanly as we are, and yet the plague continued there forty years longer than in England. Next he instances the town of Cracow as a beastly place, and yet there has been no plague there for a century. Fourthly, he says that ague alarmingly increased, and returned eleven years after the fire, and that dysentery continued to the end of the century, notwithstanding the improvements; and therefore he argues *a fortiori*, that as they could not prevent dysentery, they could not prevent the plague. Fifthly, he says that the plague is not known in India, China, and North America, where in many places they are filthy in the extreme. Sixthly, he says the plague begun first among the poor, who associated with the sailors of infected vessels. When the poison has been applied, the disease generally appears in from three to five days. I believe persons may touch the dead bodies without fear of catching the disease, but touching their clothes is another thing. It is said by Dr. BANCROFT, that the Turks employed by the French to bury the dead all escaped, with the exception of one individual. I believe that one-half of those who have it perish, and therefore you may suppose that the treatment is not very successful. But we are told that the treatment must be conducted on the same principles as in common fever.

TREATMENT.

Should there be a phlogistic diathesis, active bleeding, cold affusion, and calomel, are recommended; but, on the other hand, when there is debility, we must exhibit wine, quinine, ammonia, and, Dr. STEVENS recommended the neutral salts in great abundance. Of course those who make one exclusive rule of practice will kill a great many; those who always bleed will destroy a great number, and those who always give brandy will do the same. Mr. MADDEN says, that generally where bleeding has been had recourse to, the mortality has been very great; but where he gave strong brandy and water, and induced a copious perspiration, his success was very great. He also gave enemata of the same ingredients—that is to say, hot brandy and water; he sponged the body with vinegar and water, soaked the head with vinegar, and had hot poultices put on the buboes till they gave pain, and cut into the carbuncles to arrest the mortification; and by this local and general treatment he was so far successful, as to save seventy-five patients out of a hundred.

I should imagine that the period for lowering in this disease was very short, and that stimulating treatment was the most superior of the two. The best antiphlogistic treatment would be, not to evacuate blood, but to apply cold water, and purge. I think that active depletion would be very dangerous. The moment softness of the pulse was perceived, the treatment mentioned by Mr. MADDEN would be very efficacious.

LECTURE XLIV.

CUTANEOUS DISEASES.—BOILS.

THERE are two diseases to which I shall now draw your attention, and both are derived from brutes. The first is termed *malignant pustule* by some writers. The French call it "pustule maligne." I think the Germans term it "milz-brand." There is a carbuncle produced very similar to the carbuncle of plague. The disease is not very well understood, but its existence is fully ascertained. Sometimes it has occurred when animals have been skinned, after dying of a particular disease, in which there are pustules, tending to gangrene. The persons who have skinned them, have had carbuncular pustules of a dark colour take place on the surface, and from which they have died. I have read of one instance of a butcher being seized with a gangrenous inflammation in the face, of which he perished, after having placed a knife between his lips, with which he had killed a bullock, labouring under this affection. Some suppose this disease, a carbuncle tending of course to gangrene, bearing a resemblance to the carbuncle of plague, and that it is never produced, but by the contact of the blood, or something which the body has touched, of brutes who have died of this disease. RAYER supposes it occurs sometimes spontaneously and sporadically. I do not think he is right; I think it is not infectious but merely contagious. MORAND thinks it can arise without abrasion of the surface, if the blood of the animal be applied. ENAUX and CHAUSSIER described *pustule maligne* in 1755. HUFELAND mentions diseases of this description, which proved fatal to two men. They had been wetted in the performance of venesection, with the blood of a cow labouring under this disease. In these men the chief inflammation was discovered after death, was peritoneal, they had also bubo. Veterinary surgeons, tanners, blacksmiths, butchers, and labourers, have observed these pustules or carbuncles of this disease. It is said generally to display itself on those parts of the body which are uncovered, such as the face, neck, hands, shoulders, or arms. Many people were seized with a disease in 1818, at Ostiano, in Italy. Thirty-five persons visited an ill-ventilated stable, which contained three cows and ten horses, one of which had laboured under an offensive discharge from the nostrils for twelve months. Eleven of them were seized with the disease, and all but one died. Violent pyrexia, pains, spasms, and boils, and at last a large carbuncle, characterized the first stage; gangrenous vesicles, and a typhoid fever, were the chief features of the second. Whether this was the same disease I do not know; but if it be, it would appear that where there is a want of ventilation, and many animals are crowded together, it may be infectious. RAYER has an account of the disease.

TREATMENT.

Some persons recommend the application of the actual cautery to

the carbuncles when they appear. It is supposed by RAYER to bear a very great resemblance to the plague in human beings.

GLANDERS.

This is a disease which affects horses ; it is chiefly characterized, or very much so, by a profuse discharge from the nostrils, and it occurs in two forms, the acute, and chronic. When it occurs in the acute form, there is violent inflammation of the face of the animal, and gangrene very soon supervenes. In the chronic form there is little more than a discharge from the nostrils, and the animal will continue to labour under this for a great length of time, though in general the disease, I believe, is not susceptible of cure. It is a highly contagious, but not an infectious disease. I believe no horse ever gets it unless the matter from another horse comes in contact either with an abraded portion of the surface of the body, or the mucous membrane of the nostrils, and some say not even then, unless the mucous membrane is abraded. This disease sometimes appears in another form, and then, instead of being called glanders, it is termed *farcy*. As this disease does occur in the human subject, and as I have seen two cases myself, I think the glanders ought to be enrolled among the diseases of the skin. When the affection assumes the form called *farcy*, there are small tumors called *buds*, or small ulcers about the legs ; sometimes on the lips, face, neck, or other parts of the body. Now and then these are so small, so few in number, and create so little inconvenience to the animal, that for a time they escape observation ; at other times they are larger, more numerous, painful to the touch, and spread more rapidly ; and in these instances a general swelling of the limb often takes place, particularly when the hind legs are attacked, and some degree of lameness ensues. These tumors or buds are at first hard, but soon become soft and burst, degenerating into foul ulcers of a peculiar appearance. The lines of communication between the buds or ulcers are generally very observable, and they consist of what is termed *corded veins* : but, in general, I believe they are enlarged lymphatic vessels, running from one ulcer to another. The term *glanders* derives its name from a gland under the jaw, which is supposed to be the seat of the disease. When glanders and farcy occur in horses, they are the same disease. Mr. COLEMAN says that he has inoculated a horse with matter from farcy, and it has produced glanders, and *vice versa*.

The disease has appeared in the human subject in both forms—farcy and glanders ; and it has also appeared both in the chronic and acute character, but the chronic, I believe, has been noticed more frequently than the acute. In the chronic form there has been no tumor produced on the body ; but in other cases tumors have arisen in succession, and have suppurated, and the patients have most of them died at last completely worn out. I believe in one or two cases patients have got better. You will find three cases mentioned in Mr. TRAVERS's work on Constitutional Irritation ; and though he does not seem to have been aware that they were glanders, yet it is proved that one of them was, because Mr. COLEMAN took matter from a man

and inoculated two asses, and they were seized with acute glanders, mortification and sloughing took place, and both of them perished. I will read one of the cases related by Mr. TEAVERS: "Nimrod Lambert, a healthy hackney coachman, set 32, in January 1822; infected a chap on the inside of the right thumb, by inserting it into the nostril of a glandered horse, to pull off a scab. He remembered to have afterwards wiped the thumb with a wisp of hay. In the space of six hours he was seized with violent pain and swelling of the thumb; it inflamed rapidly, upon which he applied a poultice to it, and took some salts. On the third day he was suddenly taken ill whilst driving, with cold shivers and giddiness, and states that he entirely lost the use of his limbs for seven hours. At this time his arm pained him much all the way up, and on the following day it was streaked with red lines, and excessively swollen; the arm-pit was also much swollen and tender. In the evening of the fourth day he was carried to Guy's Hospital, where he lay during twenty-four weeks. Superficial collections of matter formed successively in the course of the absorbents. The corresponding portions of the integument sloughed, leaving extensive ulcers, which discharged an unhealthy and fetid matter. The glands at either angle of the lower jaw, and those of the groin, became swollen, and he was much afflicted with pain between the eyes, and down the nose, and exulcerations of the membrana narium, attended with discharge. During the progress of the local disease, he had much constitutional illness. He totally lost his appetite, and was oppressed with nausea; complained of severe pains, with swimming in the head." An ass was inoculated by Mr. SEWELL with the matter of this man's sores, and died glandered. This was proof positive of the nature of the disease. A veterinary student slightly injured his hand in examining the head of an ass which had died of inoculated glanders. An ulcer ensued, and pain and inflammation of the superficial absorbents took place in a few days, and soon ceased. But the absorbents of the opposite arm became affected, and an abscess formed in it, and another at the lower part of the back. He became hectic; and at length suppuration occurred also in the lungs, in one of the kidneys, and successively in each knee-joint; after which he died. Now this might have been a mere inflammation of the veins and absorbents; but Mr. COLEMAN inoculated an ass over the maxillary gland, and at the margin of the nostrils, with the matter of the abscess of the arm, and likewise rubbed some upon the schneiderian membrane. Glanders and farcy were the result, and the animal died on the twelfth day of the experiment. Precisely the same was done with another ass, but the patient's brother, but no effect ensued, as the matter was not employed for several days, and had been left exposed to the air. He repeated, however, the experiment upon the same animal with fresh matter, and it perished of glanders and farcy upon the fourteenth day.

Of all these facts I was perfectly ignorant when a man was brought to St. Thomas's Hospital with some inflammation on one of his cheeks, and gangrene of one side of his nose. He had been perfectly well excepting some common ailment which he had experienced a day or

two before. Small pustules were forming around his nose, and upon his cheeks; his face was very much swollen; one eye was nearly closed, and the other completely so, and he was a little delirious. There were soft tumors on different parts of the extremities, and I think, on the trunk; they were red and hot, and I saw that there was evidently fluid. There was a profuse discharge, as in horses, from one nostril—I think only from one, but at any rate infinitely more from one than from the other, and that was the right nostril. The pustules on the face were phlyzacious, large well fed pustules, with a hard base. They existed on, and around the nose, but principally on the right side, where the gangrene, and also the discharge from the nostrils took place. The parts which were red were hot, dry, and shining; but the nose was dark-coloured, and on its right half, black, cold, and senseless. He died before twenty hours had passed. The treatment was inefficacious. He was bled—for his pulse seemed to justify bleeding—and the blood was buffed. The preceding history of the case is this:—Twelve days previously he was attacked by pain in the right hypochondrium, for which he took ten grains of pil. hydrargyri, and the next day felt quite well. Then, five days before his admission, a pimple appeared upon the right side of his nose, and while this increased and suppurated, the surrounding parts swelled and grew red, and the state of things became such as I have described. Five weeks before his admission he had gonorrhœa, for which he had taken mercury; but the affection for which he was brought to the hospital commenced only five days before his admission. The nature of the disease was a perfect mystery; some called it one thing, and some another. The patient was under the care of Dr. Roots. The following June I found a young man lying in one of my beds, who had been brought in an hour before, in precisely the same state. The nose and surrounding parts were exceedingly swollen, so that the left eye was closed completely and the right nearly. The tumefied parts were hot and of a bright red, with the exception of an inch of the left half of the nose, which was of a mulberry-colour; precisely the same state of things that occurred in the other young man. A profusion of deep-yellow tenacious mucus, with a few streaks of blood, exuded from each nostril, but particularly from the left. Several hard phlyzacious pustules existed on the nose and adjacent parts—on the arms, thighs, and legs—and each was surrounded, in the latter situation, by a blush of red. A patch of the same colour was observed on the left elbow. His pulse did not justify bleeding; it was rather an undulation than a pulsation. I ordered him beef-tea, wine, and sulphate of quinine; but he died in a few hours. The nature of the disease not being suspected, no experiments were made, or we might have inoculated an ass.

WILLAN or RAYER, possessed no knowledge of this disease in the human subject. Each of these patients was opened, but not very satisfactorily: the father of each boy was present at the time, and forbade us doing any thing which would disfigure the head, so that the Schneiderian membrane could not be examined throughout. We were not allowed to cut the arms and legs, to see if there were tuber-

cles down on the periosteum. It is found in horses, that tubercles are formed deep in various parts of the body.

The disease would have remained a mystery to me, only that I was satisfied it was a specific eruptive fever depending on some specific cause. I afterwards saw a case in the Medical Gazette, headed, "Fatal Case of *Acute* Glanders in the Human Subject;" and I found that the case was precisely one of this description. The man was seized with rigors, headache, and slight irritability of the stomach—all the symptoms which usher in an eruptive fever. However, he had great pains and stiffness of all the large joints, and these increased to an alarming degree. The left shoulder was rather swollen, though not inflamed; but the tumefaction became considerable, and of a livid hue. Similar swellings, but smaller, took place on the arms, legs, thighs, and sacrum; exactly as in these cases in the hospital. The tumors were insensible and hard; but in the cases in the hospital the tumours were soft. They were of a chocolate-colour, but acquired a deep vermilion, and soon became of a dark brown. One appeared upon the left temple, and the eye-lids became tumefied. The right nostril was gummed up with an inspissated discharge. The posterior fauces were much inflamed, and nearly of a purple hue. Several warty pustules, (which I have termed phlyzacious,) rose above the skin, in various situations around each of the tumefactions, exactly as I have shew you in the drawings. A cluster of tubercles was found in the cellular membrane—a perfect examination was possible here—a cluster of tubercles was found in the cellular membrane exterior to the pericranium of the left superciliary ridge, and in the right frontal sinus, exactly (according to the veterinary surgeon of the regiment) similar to those observed in the frontal and other sinuses of the horse after acute glanders. On dividing the various livid tumours down to the bone, the muscles appeared perfectly decomposed, and of a dark livid colour; and under each was a cluster of grey circular tubercles. The existence of these tubercles is so common in the glanders of horses, that one French writer takes this for a tubercular disease; and it is described under that name in a French Veterinary Dictionary. Now this gentleman adds—"It appeared that the patient had had the sole charge of a glandered horse for some time, which had been destroyed on the very evening of his attack; and that he had skinned him, and exerted himself a good deal in cutting up and burying the carcase. But these circumstances did not at first create the least suspicion, and his complaint was considered a very severe case of acute rheumatism, and treated as such."

I found, with respect to my own patient, that he was a whitesmith, at Lambeth. I went there, and inquired whether he had anything to do with horses; they told me that he had never been near horses—that he was a *white*-smith. However, I went to the workshop, and I found it situated in a mews. I then asked if there had been a glandered horse in the mews, and I found there was a glandered horse in the stable for six weeks, next the corner where the patient used to work. The boards which separated the stable from the whitesmith's shop were so defective that the discharge from the animal

nostrils had come through, and occasioned a great stench. When this horse was led to the knacker's about a month before the commencement of this disease, it fell down exhausted at the door of the forge; the man patted it about the head as it lay, and took hold of the head, I also found that he had a number of pimples on his face, which were raw: and his father said that he recollected he had got a habit of wiping his nose with the back of his hand.

The man that came first to St. Thomas's, was a tailor. I went to Woolwich and found that the next door neighbour of the man to whom this lad was apprenticed possessed a worn-out pony and kept it in a filthy shed opposite the two houses. I ascertained that the animal had the glanders, and was afterwards killed on this account; that this youth was in the habit of harnessing it, and getting into a little cart, to have a ride.

I mentioned these cases, to a general practitioner at Clapham, and he told me of a case which he thought was of the same description. A young man (a pupil of the Veterinary College,) had been seized with a very severe acute affection of the knee joint—apparently rheumatic—and with severe pains just like the other cases. He proposed that I should see the patient, but the father put it off till the next day, and in the interim the son died. The symptoms before death were a copious sero-mucous discharge, occasionally a little bloody, from the eyes and nose; the schneiderian membrane was excessively red and nearly excoriated and the eyes closed. A pretty abundant eruption, very similar to small-pox, that is, phlyzacious pustules, but larger and hard, appeared in different parts, but particularly in the neck. There was scarcely any sleep but occasionally delirium, and at length convulsions; and the patient died. Unhealthy pus was found in the absorbents of the arm; the bursa of the knee contained a large quantity, with flakes of coagulable lymph. He appeared to have had under his care, at Clapham, a horse affected with the farcy; I suppose he meant glanders. The ring-finger of the right hand, and the absorbents and axillary glands, became all at once inflamed and painful; but whether after any wound or abrasion could not be satisfactorily ascertained. The finger suppurated and was opened, and a few days afterwards he was seized with headache and pains in his limbs, which were considered rheumatic. Then, afterwards, there was pimples on the face and a profuse discharge from the schneiderian membrane. No experiment was made in this case; but as experiments were made by Mr. Colman and the brother of another veterinary pupil who perished of this disease, there can be no doubt, whether this was a case of glanders or not, that the disease does occur in the human subject.

These are all the pustular diseases of the skin. It is true, some persons give that name to those produced by a blister or a tight shoe, and to those which are brought out by tartar emetic ointment.

I shall now speak of those affections which consist in extreme congestion of the skin without any inflammation, and of this description, are petchiæ, vibices, and ecchymoses. There is a particular disease in which spots appear on the skin; *petechiæ*, small spots—*vibices*,

large spots—and *ecchymoses*, extravasations, which occur throughout the body, on the conjunctiva, even within the mouth and the body, so that blood will actually be poured forth on the various viscera. This disease is called at present in this country

PURPURA.

It was formerly called *petechiæ sine febre*, or *hæmorrhagia petechialis*. It bears a great affinity to scurvy, and some fancy it is the same diseases, but I do not think so. It frequently happens without any constitutional affection. I have seen persons going about with it, and yet quite well in other respects; and in other cases, persons have died *with* it. There is no such affection of the limbs, no sponginess of the gums, as is the case in scurvy. The disease, too, has often arisen without any evident cause, whereas scurvy, never takes place except from a deficiency of proper food. If the disease occur merely on the surface of the body forming patches, it is called *P. simplex*. But frequently there is a bleeding from the mucous surfaces—from the mouth, the stomach, and the intestines. I once had a patient who died from bleeding within the head—died of apoplexy, and a clot of blood was found under the arachnoid membrane, which had oozed from the vessels of the pia mater. Sometimes the spots are large and now and then there is ecchymosis. There is no inflammation nor tenderness of the particular parts: it appears to be a mere congestion of blood. RAYER, has very properly separated it from inflammatory diseases and placed it in the order *congesta*. It is a very singular disease. You will frequently see the white of the eye spotted, and the same circumstance occurs within the mouth. The discharges of blood from the mucous surfaces are sometimes very great. It is a disease, too, which occurs under the most opposite circumstances; occasionally with great debility, weakness of pulse, exhaustion; and sometimes with the most inflammatory state of the system, so that if you take away blood, it is bled and cupped, and the patient is greatly relieved by it, and most probably gets well. In other cases such treatment would cause death. You frequently see similar patches on the stomach and liver. In severe cases, the patient looks as if he was in a state of anæmia, and I dare say the blood is deficient. On the other hand, I have seen children with many hundreds of these spots upon them, and yet perfectly well. Sometimes there would appear to be a little inflammation connected with this congestion. It is sometimes attended with great tingling, and even little wheals, and it is then called *P. urticans*, to shew that it bears some affinity to urticaria. You will frequently see—though it is not this disease—such tenderness of the vessels in old people, that if they rest upon their arm, or knock their hand against a door, so as to produce the slightest bruise, ecchymosis will take place, and that has been called *P. senilis*. It conveys the idea that it is the same disease but it is merely such a tenderness of the vessels that the slightest contusion produces ecchymosis. A person may have the disease for many years at the latter part of their life, and yet be perfectly well. You will often be consulted by patients on this occasion

rence, and it is right to know that it is ecchymosis, and should not be called purpura.

Petechiæ takes place under many circumstances—frequently in typhus fever; in small-pox between the pustules; sometimes in scarlet fever; it is very common to meet with them in dropsy, where there is great debility; they very often occur where there is extreme dyspœna; sometimes in phthisis, where there is extreme difficulty of breathing. But there may be such debility of the vessels that the blood oozes forth; they allow it to escape, or there may be an impediment to the return of blood, which may be forced out. Frequently, however, no reason can be assigned for the disease. It was at one time supposed that this disease always occurred with extreme debility; that the proper treatment for it was wine and brandy, good nourishment, opium and bark; but there is no doubt whatever that there is often an inflammatory state: although the skin is not in a state of inflammation, although these spots are not inflammatory, yet the system is in an inflammatory state, which is proved by the buffy and cupped state of the blood.

TREATMENT.

You must treat it according to the particular circumstances in each case. In mild cases moderate bleeding, or mere purging, answers very well, and I think that purging with colchicum answers better than other things. I have made observations upon this medicine in other cases: I have purged with colchicum and other things, and the difference has been very greatly in favour of colchicum. Where there is strength of pulse, it is necessary to bleed freely. I have seen patients lose two or three pints in a few days with great relief and they have got well. A great number of cases are of this inflammatory nature, but by no means all. Others are of a different description, and wine, bark, and good nourishment, must be given. I recollect a case which occurred in a child where there was merely moderate debility, and the child was out every day. The disease was not intense, but these petechiæ existed, and under good nourishment and tonics it got well. But in extreme cases it is necessary to do more than this: to give wine and opium, and treat the patient as you would if he were sinking under typhus fever, or confluent small-pox, with typhoid symptoms. Where there is hæmorrhage, it would be best treated by oil of turpentine, as it restrains hæmorrhage from the alimentary canal better than any other medicine. One of the most severe and successful cases that I ever saw treated was at St. Thomas's Hospital, by Dr. Roots. There were petechiæ, vibices, and ecchymosis, in every part of the body; great congestion of the liver, so that the right hypochondrium was distended, and blood was poured forth from different cavities. The patient was bled, and took oil of turpentine, and he got rapidly well, when he was supposed near death. I was much disappointed in a case of my own, which I treated in the same way: apoplectic symptoms came on; and on opening the patient, a clot of blood was found on the brain.

I will now say a few words on those diseases which consist in a

discolouration of the skin. Some of these are really not affections of the skin itself: for instance, in jaundice the skin is yellow; in chlorosis it is exceedingly pale; and also in anæmia: but on other occasions the skin is really itself discoloured; and among these are mentioned sun spots, and that blackness or blueness of the surface which is induced by the continued exhibition of the nitrate of silver. The organic affections of the skin are for the most part of a tubercular nature: they are what is called lupus, or *noli me tangere*, cancer and elephantiasis.

Lupus is a disease more frequently treated by the surgeon than by the physician, and is an affection that is particularly seen upon the face, around the nose, and upon the upper lip. It is exceedingly intractable. There is a kind which occurs in scrofulous children which will frequently give way, perhaps spontaneously; and sometimes also to one application and sometimes to another. But there is another description which produces deep ulceration and extreme pain, and frequently appears to be somewhat allied to cancer. This is called *noli me tangere*, from its generally becoming worse if interfered with. This disease is characterized by tubera, which are rather oval, and frequently flat, of a brownish red or livid colour, which increase and terminate in ulceration, and an ichorous discharge is then poured out, which concretes into crusts. It appears on the nose and cheeks, and sometimes upon the ears and chin, but it is calculated that eighty times out of a hundred it attacks the nose. The parts around become harder and harder, suppuration goes on to ulceration, till at last there is a great degree of destruction produced.

It is said to have been cured by the application of caustics, and particularly by arsenic, but there is no rule for the treatment; and in a great number of cases the disease resists all remedies.

The next disease is one of very rare occurrence in this country, and of which I have only seen two or three instances:—

ELEPHANTIASIS.

It has been thus termed, to distinguish it from another form which is local. In this disease the features become very much altered, the lips exceedingly thick, the whole of the face and a great part of the body beset with hard tubercles, so that a person could not be recognized. It derives its name from the skin becoming as rough and as hard as the back of an elephant. RAYER considers it to be a chronic inflammation, and you may either call it so, or an organic disease of the skin. The disease is characterized by numerous independent tubercles of a livid colour, which are particularly developed on the face and ears, the upper and lower extremities, and likewise on the arch of the palate. The tubercles terminate either by resolution or small ulcerations, which seldom extend in depth or breadth. They are covered by adherent crusts, under which a cicatrix is formed. It may occur in any part of the body, but it occurs, like lupus, much more in the face than other parts. It has been said that the sexual desire becomes insatiable in this affection, but others deny this. The

only case which I have seen occurred in a person who came from Madeira ; but it is found at St. Domingo, and the Isle of France.

It has been cured by the exhibition of arsenic. Many cases have been improved by this medicine. For the most part, however, the treatment is very unsatisfactory. There is another disease which is called "elephantiasis," but it is local, and does not spread throughout the body, nor form tubercles ; and as it commences in a thickening of the parts below the skin, it is mentioned by RAYER as a disease not of the skin itself, but as one of those diseases which extends from other parts to the skin. It is what is called *Barbadoes leg*, and it is also called *the elephantiasis of the Arabs*. It is a local disease, occurring in the scrotum and at the lower part of the leg. The skin becomes diseased, but the cellular membrane beneath is the chief seat of the affection. It becomes excessively thickened and indurated ; and at Barbadoes it affects sometimes only one leg.

A friend of mine says it is produced by a kind of flea, which is not satisfied with being on the surface, but forms a bag beneath, in which it lays its eggs, from the continued irritation of which, he says, the disease is produced. The blacks suffer from the affection in the West Indies, and they are very dexterous, by means of a needle, in dragging out the bag, so that no injury ensues ; but if any portion be left, an egg usually remains, and the disease proves very unpleasant.

The next disease, which is classed by RAYER in organic diseases of the skin, is one which you will every now and then see, and it is termed

ICTHYOSIS.

It is classed by WILLAN with scaly diseases, but as the scaly diseases I have mentioned have been all classed with a number of others in the list of inflammatory affections, this could not come in with them. It is, moreover, although a scaly disease, necessarily separated in the arrangement of RAYER from pityriasis, lepra, and psoriasis, because all those scaly diseases are of an inflammatory nature. In this disease there is no inflammation whatever ; the skin is neither red, tender, nor hot, but it is covered by a large number of scales, which are supposed to resemble the scales of a fish, but they are not imbricated—they do not lie one over another, like the scales of a fish ; indeed, in many parts, the skin looks more like the feet of cocks and hens than any thing else. At a little distance from a person labouring under the disease, you would suppose that the skin was dirty, the scales which lie upon it being of a sort of bluish colour. It exists in various degrees of intensity, and to various extent. The constitution is not in the least degree disturbed ; the health is not at all affected ; there is nothing to be seen but this organic affection of the skin, the cuticle being formed with this diseased character.

It occurs sometimes from original constitution. I had two brothers under my care last year for this complaint, in each of whom, although they were living at a distance from each other, one at Greenwich,

and one at Woolwich, it made its appearance without any obvious cause. It seemed to be constitutional, and occurred in the progress of their age. It has sometimes been known to be hereditary. The skin feels dry and rough, and there seems to be no perspiration; in general, the skin ceases to secrete a watery fluid. If the affection be more intense, it exhibits exactly the appearance that ALIBERT has represented as occurring on the knee, in plate xxxvii. and which he calls *ichthyose nacrée*. You observe that none of the scales are imbricated, and they look more like the skin of a hen's foot than any thing else. This, at a distance, looks like a very dirty leg. The affection will sometimes cover the whole body. It is said that it is not seen exactly over the furrow of the spine; but in a case which I had, that part was covered with scales exactly like the rest. The face was very little affected, but the back of the neck suffered much.

The disease is generally considered to be incurable, that internal medicine has little power over it; pitch, however, is said to do good. Dr. WILLAN states, that he cured a lady by giving her pitch, which was made into pills, and she took as many as she could swallow in a day—altogether one or two ounces. I gave each of my patients, certainly not so large a quantity as they could have taken, but each boy swallowed forty or fifty pills three times a day. One of them put them into his hand, and swallowed them as children do sugar-plums: he must have taken nearer two ounces of pitch every day than one. At the same time that I employed this treatment with one of the boys I had him oiled with olive oil. He was sent to the warm bath, and when he came out he was regularly oiled, and in this way he got well. I of course was in perfect uncertainty as to whether it was the internal or external medicine that did him good—whether it was the pitch within, or the oil without; and being told that he had a brother in a similar state, I requested that he also might come and be cured. I gave him pitch only, and in a larger quantity than Dr. WILLAN has done, but he was no better for it. I then left it off, and had him oiled, not all over, but one extremity only, and that extremity recovered its natural texture, while the other parts remained as they were. I was singular, that if a part which had been oiled by chance touched one that had not, that is to say, if one leg touched the other, this last immediately improved, though not to the same degree. These two brothers went out of the hospital with their skins as smooth and as soft as any girl's, and for the time they were certainly cured, but whether the disease will return I do not know. With regard to the latter boy, I made careful experiments with the pitch, the warm bath and the oil; and such intervals elapsed between the various modes of treatment, that I was perfectly satisfied it was the oil which effected the cure. The disease was quite of the intensity represented in ALIBERT's thirty-seventh plate. At one period I used linseed oil, but that did no good, it dried directly; the olive oil, however retained its moisture for some time.

The ordinary form of the disease is termed by WILLAN *I. simplex* but now and then it occurs in a much severer form, and then it is called *I. cornea*. The latter of these species is a rare disease, and is

of an hereditary nature. Several instances have occurred of it in the children of parents who had laboured under the disease, not perhaps appearing at their birth, but occurring, like *I. simplex*, at a certain time afterwards. There is a family in Suffolk in whom it has appeared for several generations—three or four; and what is singular, always in the male line: no female has been known to have it. Every part of the body is covered with the disease excepting the face, the palms of the hands, the soles of the feet, and the glans penis. I saw one of these men, the grandson of the person who is described in the Philosophical Transactions. It was a famous family, called “the porcupine family” from the roughness of the skin. This man told me that the scales were shed every year. I saw him again, and then they were in the act of falling off. The scales in this form of the affection all stand side by side, do not overlap each other, and when the limb is put in a certain position there is a pretty smooth surface, on which you may make a noise just like striking horn; but if the part be stretched, so as to separate it a little, you see the divisions between the scales. This man described himself as the descendant of an American savage. There is an instance of the hereditary form of this disease, published in the ninth volume of the Medico-Chirurgical Transactions, and which occurred in a female. No treatment is necessary.

There is one disease of the appendages of the skin which is very interesting; and although we do not see it in this country, we have specimens of its effects—I mean the hair. It sometimes appears that the bulbs of the hair become inflamed, a quantity of acrid stuff is poured out, the hair becomes very much entangled, and grows, it is said, sometimes to a great length. This disease is properly termed

TRICHOMA.

Sometimes it is called *plica*: and having been common in Poland, it has received the appellation, *plica polonica*. From the inflammation that exists, the scalp becomes very tender. It is found that the bulbs of the hair are gummy, and filled with a great quantity of liquid, and the least touch of the hair induces very great pain. The fluid which is discharged is gelatinous, and sticks the hair together. Some have considered that the disease is contagious, but I think that this is not the case. The causes of this affection are not known. Some ascribe it to the cessation of the perspiration, but any disease may be ascribed to that. Why it occurs more particularly in Poland than other northern countries, is also strange.

TREATMENT.

You may recommend the warm bath, and all kinds of things. If antiphlogistic regimen be indicated by the strength of the system, and the heat of the part, we may suppose that it will do good.

DISEASES OF THE SKIN AS A SECRETING ORGAN.

Dryness of the skin occurs particularly in ichthyosis, in diarrhœa, and in fevers. As to diseased secretions of the skin with regard to

quality, it is very common, as we shall find in rheumatism, for the skin to secrete an exceedingly sour fluid, so that the perspiration smells something like sour whey. Occasionally parts of the body will sweat, as in an idiopathic disease—either the hands or the feet. Many people are troubled with sweating hands, so that whatever they touch they moisten. This state, however, occurs particularly in the feet, and it is very liable to be of an exceedingly offensive character. Some persons are tormented with this only at certain periods of the year, but some have always very offensive feet, from the diseased nature of the secretions that take place there. I had a letter not long ago from a medical man, residing at a considerable distance from London, stating that he was in this condition. He was distracted—in a state of extreme melancholy, indeed, on account of the copious and offensive sweating which he experienced in his feet. He had consulted every one within his reach, but had derived no benefit. I advised a number of things that occurred to me as likely to prove beneficial, but I have had a second letter from him, telling me that they have done no good. I endeavoured to alter the secretion by purging, and by applying astringents to the feet. The second letter which I received evinced the same agony of mind.

LECTURE XLV.

DISEASES OF THE HEAD AND NERVOUS SYSTEM.

THE first disease of which I shall speak is inflammation within the head, termed *phrenitis*. You have the symptoms common to inflammation in every part, only that in this case they are situated within the head. There is a sense of constriction of the forehead, which answers to the sense of tension in other situations. You perhaps also have violent throbbing and pain in the head; throbbing in the carotid arteries, and vertigo; throbbing of the temples; throbbing within the head; throbbing at the back of the neck; and you have also an acute stabbing pain in the head, or a dull heavy pain. Although you cannot examine the part itself which is inflamed, you have morbid heat, and that heat extends to the external part which is not inflamed, so that you have another mark of inflammation—increased heat. Although you cannot see the part which is inflamed, and therefore cannot discern the redness, yet this frequently extends to the eyes so that they are exceedingly suffused, and thus you have a third mark of inflammation. Three, then, of the marks of inflammation are to be observed, though not actually at the part itself. Swelling, of course, is out of the question. Besides the pain, there is what we usually notice in inflammation—morbid sensibility, extreme excitability of the mind, and intolerance of light and noise. Another set of symptoms arises from a disturbance of the function of the part, so that there is general delirium,—*delirium ferox*. In the greater number of cases there is also constant watchfulness and sleeplessness. The secondary symptoms which arise from sympathy you have pyrexia—perhaps violent; you have a pulse accelerated, generally full, and perhaps also

hard ; at any rate, in the greater number of cases it is accelerated, and it is generally full and firm, if not absolutely hard. If it should so happen, that instead of violent delirium there is more or less stupor, then, possibly, you have a slow pulse, but in general you have violent delirium, and a full pulse. The tongue is of course altered in appearance—it is white. White is the usual colour of the tongue in active inflammation, and the tongue in this disease is generally white, but as the powers sink it becomes brown. Not unfrequently the stomach is affected, so that there is vomiting in the greater number of cases ; and as the bowels become exceedingly torpid, there is also costiveness. The urine, is generally high-coloured. As the disease continues, it is by no means unusual to notice convulsions, and at last, perhaps, paralysis. These symptoms may arise from inflammation of the brain itself, or of the membranes ; and either of these affections is called *phrenitis*. There are no distinctive symptoms in these cases. Some say that the pain is more acute, and the pulse harder when the membranes are inflamed, as in the case of *arachnitis* ; but that when the substance of the brain is inflamed, the pain is more of a dull character, and the pulse is not so hard. But although now and then you may make a very good guess, as to how it may turn out after death, yet I believe in the greater number of cases you will be wrong. In the majority of instances both parts are inflamed—the substance of the brain and the membranes ; and frequently, when the membranes only are inflamed, there is not an acute, but a dull pain, and not a hardness of the pulse, but merely rapidity. Besides, too, the distinction is of no importance. The membranes are more frequently inflamed than the substance of the brain itself, and when the substance is inflamed, it is very rare indeed for the membranes not to be inflamed likewise.

It is asserted that when the superficial part of the arachnoid has been inflamed, there is usually delirium ; but when the basilar part is affected, there is rather stupor and convulsions—at any rate, spasmodic movements. So that you see some would have a diagnosis between inflammation of the brain itself, and inflammation of its various membranes ; and others go still further ; and when the membranes are inflamed—at least the arachnoid, they would have us to infer that it is the superior part, if there be delirium, but that it is the basilar, if there be stupor and convulsions. After death you will find in regard to the membranes either a distinct red network, or an uniform redness, of greater or less extent. The minor degree, as I stated when speaking of inflammation in general, is where you can discover each vessel distinctly ; and the higher degree is where there is uniform redness in any portion, because the uniformity of the appearance arises from the excessive number of vessels which contain red blood. These patches vary exceedingly in extent and frequency. It is probable, that of the three membranes of the brain, the arachnoid is the most frequently inflamed ; and you may have the inflammation, not merely in the enveloping portion, but likewise in that which lines the ventricles. You are aware, that the arachnoid membrane dips into the ventricles, and lines them ; and either one portion

or the other, or both, may be inflamed. When this membrane becomes inflamed, it is opaque, (that is a common effect of inflammation) and it also becomes thickened, which is a common effect of inflammation. There is generally a certain quantity of serum, either upon, or in the brain and in the greater number of cases, the serum is turbid, and often larger or smaller portions of fibrin are seen in it. Sometimes the inflammation is so intense that layers of lymph are found either upon the brain externally—that is to say, upon the arachnoid, or in the brain—that is to say in the ventricles. Now and then, the fibrin is not in the form of layers, but has a jelly-like appearance, and you will find this much the most frequent at the base of the brain. Sometimes you will find absolute adhesions. In general death takes place when there is such violent inflammation too soon for the layers of fibrin to become adherent; but death may not take place so rapidly, the process may be slow, the inflammation may not be so acute, and then adhesions may be formed.

Should the disease be rather chronic, this fibrin may become very thick and organized, and you may have it to a very great extent. Dr. BAILLIE says that he once saw pus all over the surface of the brain, secreted, I presume, by the arachnoid. If it be the pia mater which is inflamed, this becomes red; there is more or less of fluid under it; and the fluid, from being confined under the membrane, like the vitreous humour in the cells of its capsule, gives exactly the appearance of jelly. The jelly-like appearance of the fibrin secreted by the arachnoid, of course lies upon the arachnoid; but the jelly-like appearance which arises merely from fluid collected in the pia mater lies under the arachnoid, the pia mater being within. When the pia mater is inflamed, you have, of course, redness of it; and now and then it has been said to suppurate, and even to have fallen into a state of gangrene. Frequently a very large quantity of blood is observed after this inflammation, between it and the cranium. The great turgescence is not confined to the vessels of the pia mater. Indeed, in inflammation of the head, the blood is not confined to the interior, but very frequently it extends to the scalp, so that you will find all the vessels of the scalp exceedingly full, and you will find an increased secretion in the scalp itself of serous fluid. When the inflammation of the dura mater is local, the effect of an injury arising either from a diseased bone, or external violence, you know that the superjacent scalp—the scalp immediately over the part, becomes so affected that it is quite œdematous, indicating after an accident great affection at a particular spot within. In general, if the dura mater be inflamed throughout, there is a great turgescence of the vessels of the scalp, and a serous effusion into it; but if the inflammation be local, then you may have exactly over the spot an absolute œdema of the scalp. When the substance of the brain itself is inflamed, you may have a very large number of red dots within, besides those which are always seen, and the latter may be double their usual size. You frequently, too, see a number of minute vessels—the vessels of the part, which ought not to contain blood, do contain it; and you see them in thousands, like so many fine red hairs in the substance of the brain.

Sometimes inflammation, situated within the brain, runs on to abscess. This is most usually the case when the inflammation is not general, but local. Dr. BAILLIE says that he once saw the brain in a state of gangrene. I myself have seen the dura mater in that state, but I never saw the brain so; at least, if we are to judge of its existence from its being very lacerable and exceedingly offensive. From inflammation the brain will become exceedingly soft, so as to be a mere pap, something like very thick arrow-root and water. There are various degrees, of course, but still the brain is softened. Now and then you will see softened brain and pus together: the brain generally looks of a dead white colour, and of course the pus has more or less of a yellow tinge, but frequently they are seen together. It is very rare for the brain to become ulcerated on the surface, but now and then such a condition has been seen.

These effects are frequently observed after chronic inflammation of the brain as well as after an acute attack; and after chronic inflammation there is another effect very frequently seen, namely, induration in that part which has been inflamed. Acute inflammation generally causes, besides the redness, a great turgescence of the vessels, large and numerous red dots, distinct red vessels, a great fulness of the larger ones, perhaps more or less effusion, and perhaps abscess. But besides all this, in chronic inflammation the brain may become hard. Now and then acute inflammation may produce hardening, but I believe more frequently it is the effect of chronic inflammation. When the substance of the brain has so been inflamed, and pus has been produced, it is sometimes not collected in a large quantity, forming an abscess, but it has been seen infiltrated throughout the brain, so that it has been found in the substance of the organ in innumerable points. Where this is the case, the substance of the brain is generally softened; because, in the first place, there must be a great degree of inflammation to produce pus; and when the pus is infiltrated so extensively, of course there cannot be induration. There is a great variety in the degree of this; so that you may have mere drops of pus in the midst of softened portions, and then still larger drops, till you come to such large ones that they are, in fact, abscesses. When the pus is collected in the form of an abscess, there is a capsule produced of various degrees of perfection, so that sometimes it has been known to have distinct coats. The contents of such abscesses will sometimes be exceedingly offensive; although, of course, no air could have had access to them. The parts surrounding an abscess in the brain may be in all states;—it may be perfectly healthy around the abscess, or it may be diseased and softened; it may be altered in colour, and so on. The matter of the abscess may, of course, remain there, and be found shut up all around; or it may work its way and burst into the ventricle, or it may burst into the nose, or into the ear. Abscesses more frequently occur in the hemispheres than in any other part. The firmness of the brain varies at different parts naturally; so that what would be morbid at one part would be only natural in another. It varies, likewise, according to the time at which we examine a body; a fresh brain being firmer than one some days old, and as soon as it

is exposed to the air it becomes very soft. With respect to different parts, I need not say that the tubercula quadrigemina are exceedingly firm. The consistency, too, varies according to age : the brain of old people is firmer than that of young persons. There is a greater variety in the degree of change of consistency after inflammation, than in any other affection.

Should the brain be softened, the part may retain its natural colour ; or it may be yellow, or of a rosy hue, or grey, or it may be whiter than usual. If the change be not the result of inflammation, the part is generally exceedingly white ; but the parts around, which are not yet softened, you will find rosy. When the brain is inflamed, the softened parts may be mixed with pus, or they may be mixed with blood. If there be a vessel of any size very near, the blood is poured forth into the softened part. It is the grey part, some think, which is the most frequently softened ; but, however this may be, every part of the brain is liable to it. When the membranes have been inflamed, it is the cortical part which is most frequently softened : from being in a bad neighbourhood, the brain under the inflammation suffers, and becomes softened. The softening may occur in one or more spots, and, like the existence of pus, it may be exceedingly partial, or it may be very general. The spinal marrow, is liable to this softening just like the brain ; and this softening occurs whether there is inflammation or not, and it is seen at all ages, but more particularly in old men. Generally around the softened part there is congestion and probably inflammation. The part is frequently softened when no inflammation can be discovered. I recollect opening the head of a young man whose brain was softened in a great many parts. He had had paralysis, and the brain was softened ; but the part was so white that you could not conceive that there had been the least inflammation. I opened another individual shortly afterwards, where there were the most intense marks of inflammation—the brain was absolutely red around the softened part. This is a proof that, though these appearances are often connected with inflammation, yet they are sometimes wholly independent of it.

Induration of the brain, may, like softening, be very local or only rather local, or it may be general ; and of course it varies very much in degree. Sometimes it amounts to no more than it would do if it had been hardened by acid ; or it may amount to the consistency of wax ; and now and then the hardness is still greater—it is of a fibro-cartilaginous character. When the brain is pretty generally indurated, it is said to be the effect of an acute inflammation : but, acute inflammation more frequently produces softening than hardening : however, in this case, hardening is more frequently thought to be the result of acute than chronic inflammation ; but it is only the first degree of hardness—that which is equal to the consistency induced by acids, which takes place from this process. When the hardening is general, you do not suppose that such extreme induration as to be called fibro-cartilaginous could exist universally throughout the brain ; and such, indeed, is not the case. The second degree of hardness—waxy hardness—is usually local ; and the same is the case with the fibro-carti-

lagnous hardness. This is exactly what we should *a priori* suppose. These two extreme hardnesses are almost always the effect of chronic inflammation. It is said, that after fever and great debility—after a dissolution of the fluids and solids—but at any rate after great debility—the brain is frequently found in an indurated state.

The red dots ought to be very numerous and very large—one, or indeed both, for us to say that there is morbid redness. You will find people differ every day about the inflammatory appearance of the substance of the brain; some contending that there are not more red dots than there should be, and others that there are. We ought not to be satisfied unless there be a very considerable number, or they are of very considerable size. They are more usually found in the medullary than the cortical portion of the brain. In examining the brain itself and its membranes, with the view of ascertaining the existence of inflammation, you must recollect that position has a very great effect; that if the head lie in the usual recumbent posture, and the body is not opened till several days have elapsed after death, extreme congestion may take place at the posterior lobes of the brain; such as might lead us to suppose that there had been a vast accumulation of blood during life. If the body have become putrid, this congestion may amount to effusion; at least the slightest touch will cause blood to be poured forth. We should carefully note whether position has been capable of causing that accumulation of blood which we observe on opening the head. We ought to look at the brain the moment we cut it, because, after it has been cut and exposed to the air, it becomes rather redder than before. Both the brain and the spinal marrow, without any accumulation at either part, have a redder appearance when death has taken place rapidly, than when it has occurred slowly—that in sudden dissolution the brain and the spinal marrow are redder than in a chronic decay of the body. Some say that they are redder in persons who have been asphyxiated, in those who have been suffocated, or died from the want of air—than in other persons. The redness constantly varies in different parts—that there is more redness in the corpora striata than in many other parts. At the base of the thalami nervorum optico-rum, there are naturally a number of red vessels, the appearance of which you must not mistake for turgescence. The white part of the brain contains more vessels in early life than in old age, when it assumes a yellow hue, and has by no means the same number of vessels. The grey portion of the brain is much *more vascular*, as it is termed, than the white portion. When a part is redder than usual, there are not more vessels than natural—they merely contain more blood than they ought to do; and therefore the expression “more vascular” is, strictly speaking, incorrect; but we merely mean by that phrase that vessels contain red blood which ought not to do so, and that those which should, have an increased quantity in them.

In some diseases the brain will become bloodless. In cases of starvation, it is said, that the brain will become colourless. When persons die through the want of some natural stimulus to which they have become accustomed, there is also this extreme whiteness of the

brain. I have seen this condition quite independent of a great cause, quite independent of the loss of blood, or the want of food, or the want of stimuli, but from local disease of the cerebral arteries. I have seen them diseased, so that they would not admit of a proper quantity of blood circulating through them, and the brain has consequently been rendered far whiter than it naturally is. How this whiteness is said sometimes to occur after there have been symptoms of irritation of the brain, but I should think that it more frequently arises from the want of blood throughout the body, or causes preventing the brain from receiving its proper quantity of blood.

Inflammation of the brain is less frequently an idiopathic than symptomatic affection. It is more frequently seen as an accompaniment of fever than other disease. It will arise, like any other inflammation, from cold applied to the body, especially when it is heated. It will occur also from simple heat; for if a person in a hot climate be exposed to the direct rays of the sun, without any covering on his head, especially if he be lying down, inflammation of the brain may be the result. This is termed *insolation*. Sometimes instead of inflammation, apoplexy is induced, but this more frequently occurs if the patient make a violent exertion at the same time. Spirituous or vinous liquors irritate the brain, or they would not intoxicate; the irritation may amount to such a degree, that inflammation occurs. Mental irritation, whether it arises from rage or any other cause, causes a great excitement of the brain. Want of sleep, or long continued watchfulness, will have the same effect. Long continued excitement of a less degree may amount to the same thing as very great excitement for a short time. Excessive use of the brain cannot be placed without the want of sleep and anxiety; no person can study without being anxious to learn what he studies, and his love of knowledge induces him to sacrifice sleep. It is very common after large doses of opium, hyoscyamus, and stramonium, to find a throbbing of the vessels of the head. After a person has taken prussic acid, he experiences a throbbing in the head, or throbbing of the throat, and more or less delirium. Wounds of all descriptions are common causes of inflammation within the head. Contusions, concussions, penetrating wounds, and mechanical injury of the head, may be considered in two ways, as exciting and as predisposing causes. You may have inflammation directly induced by them, or such morbid irritations excited, that any common cause afterwards applied, may easily produce inflammation; so that when a person has had injury inflicted on the head, whether it be fracture or any thing else, it is some very dangerous for him to drink wine or beer, or spirituous liquors for a very great length of time, or perhaps even to eat meat; the least thing under these circumstances may cause inflammatory action. I recollect seeing a person, who, twenty years before, had suffered from fracture of the skull, and on taking a glass of spirits, he immediately became nearly delirious.

It is said that the cessation of itch has been followed by inflammation within the head; and sometimes it has arisen from the removal of a tumor. The tumor has taken off a great deal of excite-

it has required a considerable quantity of blood to nourish it, and the tumor being removed, there has been so much more energy throughout the system, and the brain has consequently suffered. This has more frequently occurred when the tumor has been situated on the head itself. Women, from the cessation of the menses, when they ought to menstruate, become the subjects of violent headache, giddiness, and symptoms of that description. Now and then actual inflammation of the brain will take place. Costiveness every day induces headache; if a person pass his usual time for having a motion, headache takes place, and it is said that inflammation of the brain has sometimes been the consequence of mere costiveness. Inflammation of the eye, or the ear, or the nose, or the sinuses, will sometimes spread to the brain. Phrenitis has frequently carried off patients who have had nothing more at first than inflammation of the parts I have just enumerated. Of course, inflammation will spread in the head just as in other parts of the body. When the nose and the sinuses have been inflamed, in a great number of cases the bones have been found carious. I myself have several times seen phrenitis arise from disease of the ear. When a person has what is called *otorrhœa*, or *otalgia*—in common language, discharge from the ear, or earache—you ought to be on your guard to notice the first symptoms that he may mention of the pain in the head, or the first anxious look that is displayed. The very slightest symptoms of cerebral affection, when there is a cessation of discharge from the ear, ought to put you on your guard. I have seen several cases of this description where persons have had phrenitis after pain of the ear, or discharge from that organ; some have had deafness, some have had pain formerly, and then only a discharge.

In the first case that I saw, there was a wildness in the person's look, and a quick pulse, and I believed that the person would never go out of the hospital alive. This circumstance is mentioned by Cheyne, in his work on Hydrocephalus. In these cases the bone is generally more or less carious. That portion of the dura mater spreading upon the petrous portion of the temporal bone, is found inflamed, perhaps softened, and perhaps there is pus there. I mentioned that I had once seen the dura mater gangrenous, and that was in a case of this description: the portion of the brain lying on the ear was likewise altered in colour—even underneath there was a very considerable change. In a short time the patient became violently delirious; no bleeding, no mercury could stop it; and for this simple reason, there was local disease keeping up the inflammation. There was diseased bone, and old ulceration within the ear; and you might as well have thought of curing inflammation while a portion of depressed bone rested on the head, or curing an ulcer where there was a piece of carious bone to come away, as curing this disease. It is not uncommon in venereal nodes, when the skull has become affected, for the dura mater to become inflamed, and the patient to die with all the symptoms of phrenitis. When the external parts of the head are inflamed, as the scalp, or the face, it is very common for phrenitis to occur. When erysipelas of the face and

head proves fatal, in the greater number of instances it does inducing inflammation of the brain itself, or of its membranes at least in every case of erysipelas of the head which I have observed. I have found very considerable effusion, either upon, or within the brain, or both. This is not an instance of metastasis, or the removal of inflammation in one part from its cessation in another; it really appears to be an instance of the spreading of inflammation for the inflammation of the face, and of the rest of the head, just as vigorously in the greater number of cases when phrenitis has taken place as it did before it commenced. Inflammation of the brain, however, certainly does occur sometimes in the way of metastasis. When rheumatism ceases in the joints, or gout ceases in the situations, phrenitis occasionally occurs; and it sometimes takes place after the cessation of inflammation in the salivary glands, as in the case of mumps, or as it is sometimes called, *cynanche puerilis*. Phrenitis sometimes occurs immediately on the cessation of inflammation, but sometimes it occurs on the cessation of inflammation of the testicle, which itself takes place in the first instance after the cessation of inflammation in the salivary glands. Sometimes the testes are inflamed intermediately: it is very common inflammation of the salivary glands for the testes to become inflamed, and when that inflammation ceases, phrenitis sometimes occurs. Sometimes inflammation of the brain occurs immediately on the cessation of the mumps. Phrenitis is by far the most frequent as an occurrence in fever; and some may choose in this case to consider it idiopathic, excited by the contagion of typhus fever, malarial, or remittent fever, or by excess, or vicissitudes of temperature. Some contend that fever itself, in many instances, consists of inflammation of the brain; and if they be correct, such phrenitis must be considered idiopathic. If, however, fever be a general affection of the system, then the phrenitis would be considered by them to hold that opinion as symptomatic. Inflammation of the brain is often disposed to by native congenital irritability of that organ. In individuals who are thrown into a passion, they are very liable to phrenitis. Intoxication, injuries of, and all organic diseases of the head, especially tumors in or upon the brain, necessarily have this effect.

LECTURE XLVI.

DISEASES OF THE HEAD.—HEAD-ACHE.

INFLAMMATION of the brain and its membranes, similar to all other inflammations, may vary from mere inflammatory headache up to the most violent delirium. There may be mere headache, characterized by a sense of tension, heat, and a degree of giddiness, or there may be simple giddiness without any pain, watchfulness, or sleeplessness. Sometimes this inflammatory affection of the head will destroy the patient in a few days, or even in a few hours, and sometimes the symptoms may last for years. Chronic inflammatory headache

is neither more nor less in many cases than phrenitis, may last for many years. When the disease is of this chronic character, you may have merely some thickening of the membranes; but if lymph be effused, they are rendered still thicker. There may be continuous adhesions, and even the bones themselves, as well as the membranes, may become exceedingly dense and thick. When phrenitis is very mild, a person complains more or less of headache, but that headache is attended by a throbbing sensation; there is a throbbing pain in the head, of the temples, or of some particular part, and the pain usually is the most intense in the forehead. In the greater number of cases, the patient puts his hand up to his forehead. It is rendered worse by the heat of the bed and the heat of the fire. Also by stooping, and especially on rising again. This will cause a sensation of great weight, or even a cutting sensation, to be experienced within the head. It is generally worse in the morning, from the continued heat of the bed and the horizontal posture. There is likewise, in many cases, drowsiness; and yet the patient perhaps cannot sleep, on account of the intensity of the pain. There is a morbid heat of the head, and a morbid sensibility to light and sound: these produce, not an agony, but an uneasiness. The mind too, in these cases, is almost always irritable; and patients are impatient. In these cases, the pain rarely extends below the zygoma. If it be an inflammatory affection within the head, of course it is within the cranium, and therefore the face does not suffer; nor does it extend, for the most part, down the back of the neck. The pain is usually not increased by touching the scalp. Now and then, however, you will have the external part affected, as well as the internal, and then there may be tenderness of the scalp.

DIAGNOSIS.

In rheumatism of the scalp, there is almost always extreme tenderness. You will meet many cases where you will be exceedingly anxious to ascertain whether the pain complained of is internal or external, and by attending to these marks, you will be able to say it is internal; or, by their absence, to say that it is external. In rheumatism, there is not only for the most part tenderness of the scalp, but the pain generally extends beyond the cranium; it frequently runs down the face, behind the ears, down the neck, and very frequently there is rheumatism in other parts. Sometimes there is great perspiration as in common rheumatism. Sometimes, however, in rheumatism, the internal parts suffer, so that you have both external and internal inflammation; and, in these instances, the nature of the case is easily made out, by observing that, although the scalp is tender and the pain runs down the face and the back of the neck—although there is rheumatism in other parts and the pain is worse in the evening, yet there is likewise giddiness, drowsiness, and a throbbing of the inner part of the head. When you see two sets of symptoms like these, you may be sure that the two parts are affected, the external and the internal; and, in such a case, although you see the patient is labouring under rheumatism, yet you must not trust to such ordinary remedies as, for the most part, causes rheumatism to disappear sooner than it other-

wise would; but you must treat the case as phrenitis. If you perceive signs of internal inflammation as well as rheumatism, then, you must treat the disease so much the more actively. Very often this pain of the head, when it is rheumatic, is attended with a great sense of coldness: in these cases, too, the pain, for the most part, is worse in the afternoon or evening; but the latter is by far the most usual, and that without any cause which we can discover. The pain is not worse in the morning; the addition of two or three flannel night caps does not make it worse; but in inflammatory pain of the internal part of the head, these things could not be borne. The pain is almost always worse in the morning, which arises simply from the mechanical circumstance of the horizontal posture allowing the blood to go more easily to the head, and rendering its return more difficult, and from the bed increasing the heat of the body. But in rheumatism which is of a cold nature you will find this very pain to be almost always worse in the evening, and relieved. When pain of the head is—neuralgic, you may frequently discover its nature by the absence of these internal symptoms, and by the pain running along particular nerves. Now and then, it runs in the course of the supra and infra orbital nerves; sometimes it is particularly seated in the branches of the fifth pair near the ears; and you may trace it along the mastoideus. At other times, it does not run along the course of particular nerves, but is situated in one spot, where there is a violent continual pain which is very common in hysteria. Sometimes the part itself is very tender, and sometimes not. When you see the absence of the usual symptoms of inflammation of the head, you may easily make out the true nature of the case. It very frequently attacks the brain on one side, not in the situation of the supra orbital nerve merely, but some other part of the brain, and the pain seems seated there. In this case it is not intermittent, does not run along the branches of nerves, but is situated in nerves terminating at one spot on the surface of the body.

A pain of this description is sometimes inflammatory, sometimes attended with these internal symptoms, and then you have to treat it accordingly. But frequently there is nothing but a fixed pain in one single spot, and it may last for a few days or for a long time, coming on at regular or irregular periods. It is a very hereditary sort of pain, a pain over the brow coming on once in three weeks, or once a month, or more or less frequently. It is sometimes produced immediately by mental agitation, by overloading the stomach, or putting improper articles into it. In other cases, you will have a local pain, a pain not intermittent, situated in different parts of the head, and very frequently it is hysterical; it occurs especially in hysterical patients. So that you have pain of the head of a decidedly inflammatory nature, attended with inflammation of the brain itself or its membranes. You may have pain of the head of a rheumatic nature, and the rheumatism may be active, attended with heat, or of a cold character, which is relieved by warmth, and is worse in the evening: or you may have another headache, which is neuralgic, and of that kind called *tic douloureux*, running along particular nerves, but sometimes diffused with morbid sensibility of a particular part, or of an intermittent character—

If headache occurs over the brow, it has been called *sick headache*, because it is attended frequently with sickness. The stomach is deranged in the first instance, or it soon becomes deranged after the headache has begun; you find, more or less, headache connected with the affection of the stomach. Most persons ascribe this to the stomach; but I am quite sure it is very unjust to lay it to the charge of the stomach in every case. I am quite sure of this, because I have experienced pain of this description two or three times from evident local causes in the head. From having a draught blow on my head when I have been overheated, I have had intense pain come on. I may mention that I rarely have any thing the matter with the stomach; but, after this pain has existed for some time, I have had violent nausea, and then vomiting, the stomach being only affected sympathetically. I have observed too, in a great number of persons, that this headache has not been preceded by an affection of the stomach. People have declared that they digested well, that they had a good appetite, not only up to the time of the occurrence of the pain, but as long as the pain was moderate; but, when the pain arrived at a certain intensity, then the stomach fell into nausea and vomiting, and was disturbed as much as the head. There is no doubt that persons predisposed to these pains may bring them on by overloading the stomach, or taking improper articles of diet; but it is to be remembered that pain of the head will cause disturbance of the stomach, and therefore we have no reason to suppose that the stomach is in fault. In a great many cases, the stomach is not affected until the derangement of the head has arrived at a certain point; but the state of the stomach will bring it on, and so also will costiveness; but it is precisely the same with all other affections of the head and alimentary canal. If a person allow himself to become costive, he will be almost sure to have an inflammatory headache, and an inflammatory headache will induce costiveness. It is quite illogical to say that so many affections of the head arise from the stomach and intestines, and it is just as wrong to say that all affections of the alimentary canal depend on the head. I have known many persons have sick headache, in whom all the remedies that were employed failed in accomplishing any material good. If the system be too plethoric, if you find the pulse full, if you find them eating and drinking too much, you may do good to a certain extent by lowering their diet and bleeding. Now and then the pain is so intense that a degree of phrenitis occurs, and you must then treat it as phrenitis; but where it only comes on from time to time, I do not think that you will easily remove it, though you may lessen and prevent it from being as bad as it otherwise would. If the patient avoid every thing which is likely to do him harm, and pays proper attention to his bowels, this object may be effected. Now and then the stomach is very much out of order, and an emetic may mitigate urgent symptoms; but it will not produce material benefit. I have tried iron, sulphate of quinine, arsenic, and every medicine that suggested itself to my own mind, or has been recommended by others, but in vain. After a number of years this description of headache will sometimes cease.

TREATMENT.

You should have recourse to copious blood-letting, and bleeding in the arm is just as good as bleeding in the neck. It is not advisable to bleed from the temporal artery, because you have to put a bandage on the head afterwards, which occasions more or less augmentation of the heat, and the bandage itself is often very troublesome. With respect to opening the jugular vein, that sometimes causes so much agitation in a patient that it is not a very easy matter to accomplish; but there is no difficulty in detracting blood from the arm. I am not aware that there is any particular advantage in taking blood from the head; if you make a large orifice in the arm, make the patient stand upright, and produce a strong impression: that will generally answer every purpose. Cold should be applied to the head, but blisters are dangerous things. A bladder of ice laid upon the head, or a stream of cold water allowed to run upon it, are both very serviceable. In a case of violent phrenitis, evaporating lotions are hardly sufficient, and it is better to apply ice, or a stream of cold water. The posture of the patient should be carefully attended to. The head should be raised as much as possible, and silence and darkness are indispensable. I need not say that active purging is likewise required, and you may give antimony, colchicum, or mercury. I would not give digitalis in such a case, for it is a narcotic that frequently produces irritation of the brain when exhibited for other affections, and not only so, but it is much less to be depended upon in inflammatory cases than other medicines: it will, frequently produce delirium or headache. Antimony is a very good remedy if you give it so as to keep the patient in a state of constant nausea; colchicum, likewise, is excellent on account of its depressing the whole system, producing nausea, and purging the patient violently. But I should place the greatest reliance on mercury, and get the mouth sore as quickly as possible. Sinapisms to the feet may likewise be very useful; and after frequent bleeding, a blister applied to the nape of the neck may be advisable, and after a time, if the inflammation be not very violent, a blister may be applied to the forehead; but it is not till towards the close of the disease that I would recommend any blisters to be applied to the crown of the head. I need not say that the patient should be starved, and that rest be strictly enjoined. If the affection have arisen from the cessation of another disease, we ought, if possible, to re-excite

The same treatment in chronic inflammatory headache is required, but carried on, with less vigour. It is astonishing what perseverance in bleeding is sometimes required in order to effect a cure in these cases; you must bleed every week or ten days, either from the arm, or by cupping, or by leeches. The application of cold, of blisters to the nape of the neck, and to the forehead, and likewise setons in the neighbourhood of the neck, are all useful. Low diet, and attention to the state of the bowels, is indispensibly necessary.

In some cases which have proved rebellious to starvation, the application of cold, setons, frequent bleedings in various ways, and purgation, long continued, I have seen the disease yield rapidly on taking

away blood from a more distant part. I have seen several cases in which, on applying cupping-glasses no longer to the nape of the neck, but to the hypochondrium, and some say to the verge of the anus, the disease has rapidly given way. I have myself been surprised on some occasions to see the disease decline immediately when cupping was instituted on the abdomen. The same perseverance in bleeding is frequently necessary when the phrenitis or inflammatory state of the head is not characterized by pain, but simply by giddiness. I have seen some cases of intense vertigo in which there was sufficient strength of body to bleed freely, ultimately give way. In instances where I could not make out any sympathy with the stomach and intestines, but where it appeared to be an inflammatory state, the chief symptom of which was vertigo, or where that was almost the only symptom except throbbing of the head, on motion, or taking stimuli, I have seen continued depletion effect a cure. If patients feel themselves worse for stimuli, and you find the pulse sufficiently strong, I would certainly bleed. I recollect a case of severe vertigo in a young man attended by no other symptom whatever; and as he was young and strong, I bled him to between twenty and thirty ounces with no relief whatever, but with no aggravation of the symptoms, and I was obliged to have recourse to this extensive bleeding several times before he was cured. He had been ill from this giddiness for many months, and used to roll about the room with it, but he recovered simply by repeated bleedings to this extent. It is just the same sort of case as chronic inflammatory headache, only that these symptoms arise from the particular part of the head which the inflammation has attacked. I had a case in which this vertigo was acute. A young woman was suddenly seized with intense giddiness, but without any pain. Her eyes were pushed far more forward in the orbits than in health, and every event appeared old to her—so that there was an extraordinary affection of the brain. If she put down a tea-cup, she fancied it was years ago, and she could not get over this feeling. These were her symptoms; and as she was plethoric, and her pulse justified bleeding, she was twice depleted very copiously, and by that together with purging, she was cured.

All these affections, whether there be an inflammatory headache, or simple vertigo, may depend upon an opposite state of the brain. I have seen several cases of chronic pain of the head which have resisted all anti-inflammatory treatment, but which gave way very speedily to the exhibition of iron, quinine, or other tonics, and to full diet. You can only judge of these things by observing, not only how long the case has existed, but that the pulse is feeble, and that stimulating the patient does not make him worse. If this be the case you may safely resort to an opposite mode of treatment, and iron is the best remedy you can employ. In other cases it is well to apply cold, in the form of a shower-bath, which is a powerful tonic. This state appears to be a morbid sensibility without any great accumulation of blood, and certainly without any violent action of the brain. With respect to vertigo, I recollect seeing a gentleman who had a constant sensation as if he were going to fall forwards—a sense of plunging as he sat in the chair; he had no pain at all, but he had heat, and the

throbbing sensation in his forehead was terrific. He was upwards of sixty years of age, but he had a florid complexion, and was a strong man. It seemed to me that the case required antiphlogistic treatment, and I recommended that it should be put in practice, and that his diet should be low. I may mention that he was a very excitable person; that although he was so old, he said he had not lost any of his vigour; that since he was twenty-five he had not experienced the least change; that in hot weather he experienced the strongest excitement. Seeing all this, and that there was such extraordinary excitement within the head, I concluded that though he had no pain, yet the case was certainly of an inflammatory nature. Antiphlogistic measures were put in practice, but without the least benefit. He was afterwards allowed meat, wine, and stimulants of all kinds, and he got perfectly well. I thought antiphlogistic treatment would be best, and it is possible that the other mode might not have succeeded if anti-inflammatory treatment had not been put in practice first.

You will have inflammatory pain of the head of a nature to be benefited rather by stimulants and tonics than by depletory measures, and you may have these partial symptoms of affection of the head, such as vertigo, which must be treated in the same way. After the acute disease you may have a state in which nourishment, and even opium, are the chief remedies. At the close of phrenitis, especially if you have evacuated well, there sometimes will be a continuation of delirium; and if you evacuate still more, you will kill the patient; and sometimes this state will come on without any previous active inflammation. In such a case as this opium is the proper medicine, and for the most part the patient's diet must be good. There is another instance of inflammation of the brain, which, from its causing, for the most part, great effusion, and this effusion having formerly been noticed more than any thing else, the disease goes not, or has not gone, by the name of inflammation of the head, but has received the peculiar appellation of

HYDROCEPHALUS ACUTUS.

Some, have been more precise in their language, and have called it *hydroencephalus*; and others have called it *phrenitic-hydrocephalus*. It is seen, in the greater number of instances, in children; in fact, it particularly occurs in the phrenitis of adults is sometimes attended by a very copious effusion. When a child has inflammation within the head, it usually goes by the name of "hydrocephalus acutus," but in its essential character it is very much the same as the common phrenitis of adults. It frequently comes on in children after premonitory symptoms—after heaviness of the head, dullness of the mind, and a disturbance of sleep; and the child frequently has frightful dreams, wakes screaming, and is found to be restless both up and in bed—to be exceedingly peevish in temper, and there is a continual knitting of the brows. The last is a common symptom in inflammatory states of the head. The child, too, frequently is observed to walk insecurely—to totter a little, as if it experienced a certain degree of vertigo. Some say they have observed children, under these circum-

stances, put their hands behind their head, and pull the back of their neck. There is occasionally darting pain in the head, and feverishness. The body is hot, and the pulse is quick and exceedingly various. You will observe, too, that from the feverishness the child picks his nose and lips; the nose and lips are dry, and this gives rise to a degree of itching, so that the child is continually picking its nose and lips. There is thirst and loss of appetite, and frequently there is a fœtid breath. The stomach and bowels are disturbed; the tongue is white, yellow, or brown; nausea is experienced, and also vomiting and costiveness—though occasionally there is purging and griping. The faces are observed to be white, and to have a sour smell; but, on the other hand, they are sometimes dark and very fetid. The abdomen is frequently full, especially at the epigastrium, and there is frequently tenderness on pressure; but this is particularly noticed at the epigastrium and the right hypochondrium.

Now these premonitory symptoms may go off spontaneously, and if the practitioner attend to them he may remove them so that nothing follows. Whenever we see such symptoms as these, we must recollect that they may be easily followed by hydrocephalus, and it is our duty to attempt to remove them, which we may generally accomplish; but if we fail, and hydrocephalus does come on, we have, at any rate, done our duty. It is true that hydrocephalus might not have supervened, but it was impossible for us to tell that, and it is our business to do what we can to prevent it. These symptoms may last only a day or two, and then come on with increased severity; or they may last many weeks. The continuation of these symptoms has been detailed by Dr. YATES, who terms them the premonitory symptoms of this disease. When the disease is formed, it has two stages; and it may occur without any premonitory symptoms at all. Not only may they vary in duration—from a day to a few weeks—but they may last only for an hour or two; and, indeed, they may not exist at all: the child may be seized in a moment. When the disease occurs, there is severe pain in the head—shooting through it; so that the child lays its head in its mother's lap, and is continually crying. It is awakened, too, from sleep by this violent shooting pain in the head; the head is found to be very hot, and there is an intolerance of sound and light, and, from the sensibility of the retina, the pupil is very much contracted. From the extreme irritation, I presume, of the nerves, there is strabismus; but some ascribe this to a paralysis of certain nerves, so that some muscles get the ascendancy over others; however, you will see it before there are any signs of paralysis during the mere excitement of inflammation. Besides the squinting, there are convulsive spasmodic motions of other muscles, and frequently there is general convulsions. Sometimes there is at last, but sooner in some cases than in others, delirium; and the delirium may not, in the first instance, be constant. The child is observed to turn its head continually on the pillow, never to be at ease, and there is a peculiar motion of its arms; so that it saws the air with its hands, and tosses them over its head. Whenever you observe these symptoms, you may be sure that the disease is formed.

There is now violent pyrexia ; the pulse is rapid and full. GOLIS says, that the abdomen sinks, and becomes flatter, and that this is a pathognomonic sign of the disease, so that if this occur, you may be certain as to the nature of the disease. There is, in this stage, costiveness ; and the stools are usually very foetid and of a very dark colour, something like tar. About this time, the abdomen (especially the epigastrium, or the right hypochondrium) is exceedingly tender, and the vomiting which occurred as a premonitory symptom is now perhaps very frequent. These symptoms, like the premonitory, may exist for various periods ; but, of course, they cannot exist so long as the premonitory symptoms may. They may last only a few hours, or they may last a day or two ; or they may be extended to seven days, but I believe they very seldom go beyond that.

Then the second stage comes on ; which is that of exhaustion. There is more or less blindness, and the child is unable to discern one object from another ; and perhaps it cannot perceive the light, which is now borne very well. There are no longer twitches, and the pupils are no longer contracted, but dilated ; sound no longer produces disturbance, but appears not to be heard. There is a general insensibility, and the child, from being delirious and irritable, is now drowsy ; and the convulsions come on with more intensity, as likewise does the squinting. The pulse is no longer quick, but weak and slow ; and, in fact, an apoplectic state occurs. There is sometimes hemiplegia, or local paralysis of the limbs ; and there is likewise paralysis of the eyes. Sometimes you will see the two stages marked very distinctly, but you see one running gradually into the other, so that both may exist together in a limited degree ; and this may last for three weeks, but it rarely extends much longer. The first stage does not subside entirely, but there is a great diminution of it ; and the second stage comes on, but is not fully formed. The first stage without the second, rarely extends beyond seven days ; but when the second stage begins before the first has come to a close, the two may continue together for two or three weeks. Now and then the pulse is quick throughout the disease ; and when the apoplectic state comes on, the pulse is as rapid as before, or very rapid.

It has been observed, that before death, after the second stage has been fully formed, there are again symptoms of excitement ; so that some writers have divided the disease into three stages : but this, I believe, does not occur very frequently. Now and then, however, there is excitement, and the pulse, after it has been slow, will become quick ; there will appear to be some sensibility of the eyes and ears ; even the muscular powers which have been implicated will be restored partially, and likewise the mind ; so that not only the delirium but even the stupor will pass off, and the child again knows its friends and parents. Some of these symptoms will occur without the others. Occasionally the mind will be restored to a certain extent, and the senses restored, and yet the pulse will continue low. Now and then the pulse will be rapid, and no other change occur. But now and then this excitement will occur before death—this restoration of the powers of the mind and the powers of volition in the muscles, will

take place where great effusion is found after death, and where there is every reason to believe that effusion existed at the time that this restoration occurred. Poor people term this "a lightening before death;" and you will observe in many diseases an apparent amendment just before the fatal event. But when this last change does occur, the pulse, for the most part, whatever restoration there may be, there is more or less stupor observed, and perhaps still convulsive actions. This disease occasionally occurs in a moment, and when that is the case, from the idea of water being so prevalent among medical men, it has been called, by Dr. GOLIS, *wasserschlag*, or water-stroke. But it is to be remembered, that you see children die from this disease without effusion taking place; and on that account, the name of *arachnitis* would, I think, be much better than hydrocephalus. I believe I mentioned, when speaking of inflammation, that sometimes, in a moment, a child will have a rush of blood to the head—that it will breathe hard, and die; and after death a great collection of blood may be found in all the vessels of the head. Sometimes, when it terminates, it leaves more or less paralysis; sometimes it will leave hemiplegia; and some patients have recovered with the loss of a leg or an arm.

LECTURE XLVII.

DISEASES OF THE HEAD.—HYDROCEPHALUS ACUTUS.

AFTER death from the disease hydrocephalus, you may find marks of inflammation and congestion in the brain itself and its membranes. Sometimes you will find nothing more than that, so that the strabismus or squinting, the dilatation of the pupils, and the coma, are not necessarily the result of effusion: you may find no effusion whatever, notwithstanding the child has died from this disease, and although previous to death there was strabismus, dilated pupils, and unconsciousness. Death will arise from the mere irritation and excitement which the child has undergone, and the compression and perhaps fullness of the vessels; but certainly it is not necessary that there should be compression from effused fluid. Frequently you will find the same congested and inflammatory state on the scalp that there is within, and a great deal of serum, as seen occasionally in common phrenitis. Sometimes you will not find any of these things. I have opened children who have died of this affection and found nothing; the congestion and the signs of an inflammatory state having subsided, I presume, after death, and the blood having left those vessels in which it ought not to have existed, and returned to its usual route. It is possible for even the marks of inflammation to cease after death, before you examine the body. If, however, there be fluid, it varies very much as to its clearness: as in phrenitis, it is sometimes perfectly limpid and uncoagulable. It will be found of course in or upon the brain, and it is generally found to amount to from two to six ounces. The brain at large is sometimes found oedematous after this affection, especially at the corpus callosum, the fornix, and the septum lucidum, and this

œdematous state exists either alone or in conjunction with ventricular effusion. In infants there is great ventricular effusion at the same time that you find œdema of the brain, and not unfrequently the same circumstance is noticed in adults; but it is generally seen in infants.

The brain, after this disease, is very often found soft particular parts appear to have become softened by the inflammation; and it is not an uncommon thing to meet with scrofulous tubercles in the brain itself or its membranes, shewing the pre-disposition to disease in the brain. These of course existed before the hydrocephalus was set up; but they shew the tendency to disease of the brain. The longer the disease has lasted, the greater in general is the turgescence of the vessels, and the softer is the brain, according at least to Dr. GOLIS who mentions that effusion will sometimes take place in a very few hours. Now and then we have marks of inflammation in the liver and in the intestines: it is not by any means uncommon for an inflammatory state of these parts to co-exist with this disease.

This is for the most part an infantile disease, and it chiefly affects children from two to ten years of age. Sometimes it occurs about puberty, sometimes afterwards. It is an affection that is very prevalent in families, so that you may meet with some who have lost several children by hydrocephalus. It frequently succeeds other acute diseases, especially hooping-cough; now and then, frequently indeed, it occurs during teething.

HIPPOCRATES speaks of water in the brain, and he mentions many symptoms of acute hydrocephalus. This particular disease was first accurately described by Dr. WHITT in 1768: he gives a full description of the inflammatory symptoms. Dr. COOK, in his work on Nervous Diseases, states that Dr. GREGORY used to say it was described by a surgeon at Glasgow in 1753, and that M. PETIT, a celebrated surgeon at Paris, gave many of the symptoms in 1718. Our prognosis ought to be exceedingly cautious even during the premonitory stage; it ought to be still more cautious in the first stage of the disease itself, and it ought always to be unfavourable in the second stage, although some recover from it, and even, the third stage, when excitement takes place. It is said to have been recovered from spontaneously. However, children have actually recovered from the disease in the very last stage. Even by medicine and the best means, recovery is very rare, and perhaps a favourable issue occurs quite as frequently by the spontaneous efforts as by art. It is said that there is no one symptom which indicates death with certainty excepting slow breathing.

TREATMENT.

This disease is clearly inflammatory, and the treatment of inflammation is that which is demanded for its cure. From the effusion which is generally produced by the disease, one would suppose that there is an inflammation of the arachnoid. The fluid which is effused in the greatest quantity is found in the ventricles lined by the arachnoid and upon the brain in the cavity of the arachnoid, and, therefore, one would suppose that the chief seat of inflammation is in that

membrane. The effusion, is the mere result of inflammation. During the premonitory symptoms we have first to empty the bowels well, and, for this purpose, calomel in full doses answers better than any thing else; at least it is best to lay a foundation with it, and then carry it off by another purgative, such as castor oil. It is always best, in the first instance, to premise a dose of calomel; other purgatives then answer to a certainty, and the bowels are well cleared. This open state of the bowels is to be preserved of course by repeated doses of mild purgatives, such as castor oil from time to time. Perhaps one or two very full doses of calomel would be advantageous. It might also be useful to give mercury in small doses, such as hydrag. c. creta, if the calomel operate too much; but the proper treatment is certainly to empty the bowels well, and, if you think it requisite, to give mercury in repeated doses, for the purpose of producing a mercurial action on the system. But if there be any tenderness of the abdomen, this of course should be carefully attended to, and leeches should be occasionally applied to it. In such a case it would be well to avoid giving acrid purgatives, lest you should increase the inflammatory state; and if mercury be still given, it should be in the form of hydrag. c. creta, or you may exhibit castor oil from time to time, in order to empty the intestines. Wherever the abdomen is tender, there leeches should be applied. The warm bath is useful in almost all diseases of children; but, to render it advantageous, it should be employed twice a day, and it is an excellent remedy in the premonitory stage of hydrocephalus. The diet should be mild, and the leeches should be applied from time to time to the head. When the disease is fully formed, when you see that the disease is in existence, and not merely hanging over the patient, then you must act with the greatest vigour. You must consider that you have an acute inflammatory complaint to treat, and you must bleed freely and early, and exhibit mercury with the greatest freedom. Those who are not aware, or do not attend to the circumstance, of the power which mercury occasionally exercises over an active inflammatory state of the system, all allow that in this disease it is of the greatest use. It is a very good practice to open the jugular vein, or a vein the arm, if the child be old enough. Abundance of leeches should be applied to the head. While doing so you should carefully attend to the abdomen, and if there be tenderness, you should apply them there likewise. Very large doses of calomel are borne in this disease, both from the circumstance of the disease being of a highly inflammatory nature, and subsequently, in the second stage, from the whole system being in a state of torpor. During the compression of the brain, or the softening of it, very large quantities of calomel are admissible. The bowels, I need not say, ought to be thoroughly cleared several times a day, and mercury given as rapidly as possible. The bowels will bear many doses of calomel in the twenty-four hours; but if from their irritability they will not bear calomel, you must try whether hydrag. c. creta will answer better, or you may lose the mercurial effect. It is a good practice to rub mercurial ointment into the parts as fast as it can be done. The patient should be kept as upright as possible, and it is desirable, if

the child be hot, to apply cold to the head, and you will find ice to be the best application. After proper bleeding, local and general sinapisms may be applied to the abdomen—or blisters. In the latter stage of the disease a blister to the nape of the neck, or the warm bath, may still be of use; but you cannot expect great benefit from them in such an active inflammatory disease as this. The bladder of ice should be kept on the child's head while it is in the bath. In the second stage of the disease, when there are signs of torpor and paralysis, when the pupils are dilated and the patient cannot see, when the pulse is perhaps slow and apoplectic symptoms prevail, the same plan should be pursued exactly, according to the strength of the patient. If the inflammation be still going on, the signs of compression may not arise from effusion, but from the great congestion of blood; at any rate, the inflammation may still exist. When you can apply leeches no longer, still you may continue the exhibition of mercury and antiphlogistic treatment. You may now apply a blister to the whole head; there is no danger whatever from it in this stage of the complaint, and it frequently does great good. When all these things have failed, it is said that some children have recovered by the use of elaterium, and others by the employment of digitalis and squills. If any thing of this description be given, it should be in small and repeated doses. If elaterium be given with the view of exciting an evacuation of fluid, it is best to put a grain into two ounces of liquid, and if the effusion be going on, to give the child a tea-spoon full of the mixture every now and then till it operates in the way you wish. During the last period of the disease opium has been given with advantage, not for the purpose of cure, but to procure sleep and tranquillity, and it has never been productive of harm. In the latter part of the disease it may be necessary to give good nourishment, in order to support the patient, and even stimulants may be required, for after the disease has existed for a length of time, you may have a state of irritation of the brain arising from mere debility. The inflammation may have all subsided, and an opposite plan of treatment to that which was at first imperiously necessary, may be required.

SPURIOUS HYDROCEPHALUS.

It is very proper that you should know the symptoms, or many of them, may occur in a state of the system in which the loss of blood, even purging and starvation, would be fatal. It now and then happens that a child will become exceedingly drowsy, shall have a dilatation of the pupils, shall perhaps squint, and appear to be labouring under this disease, and the patient may likewise experience more or less delirium. But usually in such a state there is no pain of the head, or it is only transient, and the skin is cool, or absolutely cold. The pulse, as in hydrocephalus, and other inflammatory diseases, is quick, but it is weak, and the face is not flushed as it is in inflammatory diseases, but it is perhaps pale, or only transiently flushed. In this state, if you apply leeches, or if you purge, in all probability the patient will presently sink. This is a state that will sometimes happen from the first. A child, perhaps after diarrhoea, after something

which has weakened him very much, falls into a state of torpor of the brain; it becomes heavy, stupid, and half blind; the pupils are dilated, and there is perhaps even squinting.

When children have died in this state frequently nothing has been found, or the vessels of the brain have merely been found unusually serous. There may be a little effusion, but in many instances the vessels have been less distended with blood than usual.

If a child is in this condition it is best to give it beef-tea and ammonia every three or four hours. This induces rapid improvement.

In most inflammatory diseases, a stage may come on in which perseverance in the antiphlogistic plan is highly improper. A state of irritation comes on in the stead of inflammation, and the treatment appropriate to the one is most inappropriate to the other. I saw a person who had evidently laboured under phrenitis. He had been bled, purged, and so on; but that morning the time had arrived for doing no more antiphlogistically, but adopting the reverse plan. His pulse was 120, and feeble; there was no flushing of the face, no redness of the eyes, but there was delirium and feebleness of pulse, indicating that no more evacuations were necessary—so far from that, we agreed to give him a full dose of opium. He took four grains, which would have been highly injurious in the inflammatory stage, but it immediately put an end to all the symptoms; he had a quiet sleep, he awoke without delirium, and with a strong pulse. Now it is just the same in children. After hydrocephalus has lasted some time, you may judge by the pulse and paleness of the patient that evacuation will increase instead of diminish the mischief; and you must be aware that just such a state will come on without inflammation. There may be a state of irritation and debility without inflammation having been present.

Adults will sometimes experience great effusion in the head during an inflammation of the membranes. Hydrocephalus is almost peculiar to children, but now and then it occurs in adults, although rarely to a great extent, or in the marked manner that it does in children; but after any inflammation within the head, it is very common to find more or less effusion. The acute convulsions to which children are liable are much allied to hydrocephalus acutus, and frequently require to be treated in the same way. Children are very liable to epileptic fits and regular convulsions, from irritation of the bowels, teething, and other circumstances. These will sometimes depend upon the mere circumstance of teething, and cease if the gums be lanced; sometimes they arise from the intestines, and are cured by purging, so that other antiphlogistic measures are not required; but sometimes they depend on, and are connected with an inflammatory state of the head, and after death you find the same appearances as in hydrocephalus, at least you find that the lining membrane of the ventricles is of a scarlet colour.

The treatment of convulsions, if you cannot discover an exciting cause in the gums or intestines which it is in your power to remove, should be, if the pulse will justify it, the same as for hydrocephalus. But it is necessary here to make the same diagnosis that you do in

hydrocephalus. These convulsions may be connected with debility, may be connected with a weak pulse, paleness of the face, or only a transient flushing of it, and in such cases as these you may expect that assafœtida, or a small quantity of laudanum, or ammonia, may answer a good purpose. In these cases of convulsions cold affusion has frequently been attended with a very good effect. In the work of Dr. CURRIE on Cold Affusion he mentions several cases of convulsions in children where they ceased immediately on the sudden application of cold water. Now if these had arisen from an inflammatory state, the effect would not have been of this kind. You cannot cure inflammation by merely throwing cold water on a patient. It is clear that the convulsions of children may arise from irritation without the head—irritation frequently connected with a distant part; but if there be an overfulness of the head in particular, or of the system at large, without marks of inflammation, or still more with marks of inflammation, it is not right to trust to anything but the common antiphlogistic remedies vigorously employed. Chronic convulsions of children, are allied to epilepsy, and must be treated in the same way.

CHRONIC HYDROCEPHALUS.

In chronic hydrocephalus there frequently is no sign of inflammation to be discovered; sometimes it is pure dropsy, independent of inflammation; at least there is none that can be made out, and it is a very slow disease. Sometimes the affection is connate—born with the patient; sometimes it does not appear before the first or second year, and it has continued during a tolerably long life: a patient has lived with dropsy of the head till he had attained his fifty-fourth year. GALL and SPURZHEIM mention the case of a woman who arrived at this age in whose head four pints of fluid were found, and the patient did not then die of that disease, but of enteritis. When the water exists in this chronic form, its amount is sometimes very considerable. In the acute disease, where the effusion is the result of inflammation, there is seldom more collected in a child's head than from two to six ounces; but in the chronic form it is frequently so considerable that the bones separate, and the sutures and fontanelles do not close. Dr. BAILLIE in one of his plates represents the appearance of the skull in this disease. The fontanelles are much larger than they should be, and they sometimes acquire a very considerable size. The sutures may be found distinct, each bone in some cases being separated. These are very common appearances.

There is nothing at all surprising in the circumstance of the sutures gaping and the fontanelles spreading when the water is collected, provided the bones have never cohered; but the bones and sutures will open after they have been firmly united together. Dr. BAILLIE, in the fourth volume of the Transactions of the College of Physicians, mentions an instance of a boy, eleven years of age, in whom the fontanelles had closed and the bones become well united by sutures; but in whom they all separated again. Mr. FORD observed the same occurrence in a boy nine years of age; they separated six weeks before his death. But it is to be remarked that in (Mr. FORD's) case, the

serrated processes were much fewer than usual: so that the bones had far smaller points of contact than they ought to have had, and separation, of course, would be more easy. It is most probable, that if the water had collected in persons in whom there was the natural quantity of serrated processes, the bones would not have separated. I think, that, in the instances I have met with of this affection, I have made the same remark as Mr. FORD; and such being the case, we can conceive that separation would be more easy.

In this affection the fluid is almost always perfectly limpid; it is generally as clear as the purest water. On being analyzed, it is found as you may suppose, to contain scarcely any salt or animal matter.

When the water collects to a very great amount, it is usually found in the ventricles, and they are therefore expanded, so that the whole brain becomes like a bag. On removing the cranium you find the brain spread out to a great extent—you find the fluid collected within, and, on making a section, you find that the brain is exceedingly thin—not thicker than paper—and the fluid immediately gushes out. You see a large bag; and this led to the erroneous belief formerly that in this disease the brain was destroyed. MORGAGNI reproaches those who published so absurd an opinion. If the fluid be collected above the brain, and not in it, I know that then the mistake may easily be made; and it may be imagined that the brain does not exist. I was present at an inspection of this description, where a child had a very large head, and had evidently laboured under hydrocephalus. On removing the bones, cutting into the sac which contained this immense quantity of water, and letting off the fluid, there was nothing more to be seen. On looking into the membrane which contained the fluid there was nothing to be seen resembling brain. There was a large cyst which had existed upon the brain and spread itself out in every direction, so as to produce an enormous size of the head, and there lay the brain, quite little comparatively, at the very bottom of this cyst perfectly sound. The distention of the cranium, be it ever so great is generally equal in all directions, but now and then it is not so. GALL and SPURZHEIM state that they saw a learned and well-educated man with a forehead so high that it must have contained three or four pints of water, while the rest of his head was not of an unusual size. The only effect in him was that he often fell asleep. Now and then the bones of the internal ear become separated by the sac, so that deafness is produced. You will also observe another effect within the skull. The convolutions of the brain being enveloped by the collection of water, there is an irregular pressure upon the supra-orbital plates of the frontal bone; and therefore there is not that roughness, that irregularity which you see in ordinary cases. You know that the upper part of the orbital bone consists of so many depressions and elevations; but in this disease as the convolutions of the brain are enveloped by water, you will generally find the upper part of the orbital plates perfectly smooth. The bones are sometimes thickened, but in a great number of cases they become thinner than natural. Dr. GALL mentions, that the head of persons in

whom this disease exists to any extent, is generally scurfy; I have found the observation to be correct.

Sometimes in this disease the bones do not give way, there is no dilatation at all of the cranium, and it is said that they are even smaller than natural. I presume, in these cases the bone cannot give way, and, of course, in such instances the brain must shrink; the bones, however, generally do give way. There was a child, named Elizabeth Phillips, in St. Thomas's Hospital a few years ago, who was born with a head as large as that of a child seven months old. The bones were all distinct, her hair was scanty, and there was an abundance of scurf on her head. She was fat, and as lively as other children of her age, and there was no symptom indicating the existence of fluid except the size of her head. Though she was only eleven months old, the circumference of her head was twenty-seven inches five-eighths; from the top of the nose to the occiput, it was twenty-two inches; and from ear to ear, across the top of the head it, was seventeen inches one eighth. When you consider the age of the child the measurement was enormous. There was a poor man in St. Thomas's Hospital, a few years ago, whose head was thirty-three inches in circumference, twenty-two inches from ear to ear, and twenty-three inches and a half from the nose to the occiput. He was thirty-three years of age, and his cranium was ossified in the sutures. Of course the bones had separated originally, but fresh bone had afterwards been deposited in the membrane between the frontal, occipital, and temporal bones; so that he had as perfect a cranium as any one else. In him there were found as many as ten pints of water—nine pints on the brain, and one pint in the lateral ventricle; and what was curious was, that the corpus callosum was split by the distention. An opening existed in the posterior part of the falx, through which the water, in all probability, had passed from within to without; because in a great number of cases, the water is contained in the ventricle; and it is probable that, in this instance, it had made its escape. His brain only weighed two pounds, fourteen ounces and a half; whereas the water in and upon the brain amounted to ten pints. ANDRAL mentions that water has been found in the fifth ventricle. I believe it is sometimes called a quirk to ask where the fifth ventricle is situated, but there is a little space which may be called the fifth ventricle; and ANDRAL says that BROUSSAIS has found dropsy even of the fifth ventricle.

In this disease the mind is generally weak; sometimes there is downright idiocy, but, as the brain is only expanded, and not destroyed there is occasionally considerable mind. Cardinal, the man at St. Thomas's Hospital, had occasionally epileptic fits, and his mind was certainly weak. He was what is commonly called a soft sort of person. He was also exceedingly vain, and pretended to have violent sexual desires. He could walk of course; but being top heavy, and having thin spindle legs, he did so with the greatest caution, lest he should overbalance himself. Now and then if he were not delirious, he was very ill tempered.

This disease may exist when there is no brain. Dr. GALL asserted

at first, that when there was water in the head the brain was always present; but he corrected this statement and acknowledged that people were sometimes formed without a brain. In *foetuses*, where there has been nothing but the medulla oblongata, they have sometimes had water in the head instead of brain; not that the brain has been destroyed by the water, but it has been deficient by original formation; the *foetuses* have been monsters. In these cases there are generally no marks of inflammation; but you will generally find at last that there is irritation; you will find the vessels of the head enlarged, and the head itself hot; the person has more or less feverishness, and emaciation occurs, which is generally followed by death in the course of a year or two. In the greater number of cases this is the course of the affection; but you see other cases where no such thing occurs. In Cardinal there were no signs of inflammation at all. He eat and drank like other people. In the *Edinburgh Medico Chirurgical Transactions*, Vol I., a case is recorded in which a female child only seven months old had a head which measured twenty-nine inches and a half in circumference, and from which there was let out after death two hundred and thirty six ounces of perfectly clear fluid, such as is usually found in chronic hydrocephalus. This fluid was contained in a bag; but then the brain was split in two. Now you of course know that when the brain is first formed it is not in one part, but it afterwards unites, just the same as the portions of the lips. The portions of the lips, however do not always cohere, and precisely the same occurrence takes place with regard to the brain, so that it remains divided—it is never united, and the whole of the ventricle forms a continuous bag with the arachnoid and the surface of the brain. And in the case to which I have just referred, on opening the head a ventricle was seen at the bottom, simply from the brain not having united, as it should have done, in the progress of the formation of the body. This was merely a case of hydrocephalus, water in the ventricle, the ventricles not having united as they ought to have done. The rest of the brain was of course at the bottom. In the case recorded in the *Edinburgh Medico-Chirurgical Transactions* there was a deficient cohesion of the brain; but in the eighth vol. of the *Medico-Chirurgical Transactions* of London a case is mentioned where, in this disease, there was so great a distention of the brain, that at last it actually ruptured; both the brain and the membranes gave way under the posterior fontanel, and an external swelling was seen to be produced, so that the whole head became oedematous, and fluid oozed from the mouth and nostrils for eleven months. The child lived that period after the giving way of the brain, and even of the dura-mater; but of course it must have been very local.

TREATMENT.

I believe medicine is perfectly useless; but mechanical means have been found very beneficial. If a puncture be made, and a large quantity of fluid let out, the child may die very suddenly, almost immediately; but if a minute puncture be made, and a small quantity only let out at a time, it may be done with perfect safety, and the head has

been known to be reduced. I never saw a case of this kind; but it has been said very lately that some cases have been cured by a puncture being made, and a certain quantity only of fluid let out at a time. Another mechanical means also has been of very great use. The head should be bandaged nicely so as to have an uniform pressure throughout. Sir GILBERT BLANE first attracted particular notice to this remedy. He has published some cases where, if there were not complete success, yet very great benefit was derived from the plan. I rather think it is said that some cases have been cured by bandaging. Some surgeons, instead of applying bandages, have employed adhesive plaister, so as to confine the head, and this has answered still better. The only case in which I have had any experience of this was at St. Thomas's Hospital, in the child of an Irish woman. I directed the head to be bandaged; and it not only became smaller, but the general health was very considerably improved—indeed more so than the head. Unfortunately, the bandage was neglected, and the child immediately grew worse. The bandaging was again attended to particularly, and the child again improved; but I do not know the result of the case, because the mother took it away. Supporting the body, and pressure of the head by means of equal bandaging, appear to be the proper means of treatment; and, I presume, after letting out a portion of the fluid, it would be well to employ bandaging.

Persons in this disease may be expected to be a little weak on account of something being in the brain, but nothing more. There is a case, however, mentioned by Dr. HEBERDEN, in the Transactions of the College of Physicians, in which a chronic accumulation of water occurred in a man eighty years of age: at least eight ounces of fluid were found in one ventricle, and four ounces on the brain, after death. There was some organic disease about the plexus choroides, a solid tumor of calcareous matter, and ossification of the basilar and internal carotids, and their chief branches. Although twelve ounces of fluid were found in his head after death, he had suffered nothing except being deaf many years, and which many persons of eighty are, and once or twice he had vertigo till six weeks before his death, and then he had a fit, from which he quite recovered, and was perfectly well, before he died. This shews how nature will accommodate herself to an inconvenience if it come upon her gradually

LECTURE XLVIII.

DISEASES OF THE HEAD AND NERVOUS SYSTEM.

SOMETIMES there is a collection of water low down in the spine, and a tumor is formed externally. From the bone being generally deficient and the spine gaping, the disease is termed—

SPINA BIFIDA.

This, like the accumulation within the head, is sometimes congenital, born with the child, and sometimes it is not. Sometimes a col-

lection of water will exist with a sound spine, and sometimes the spine is bifid. There is a tumour produced, sometimes more than one, and generally the tumor is situated at the lower part of the spine—that is, in the loins, and the higher the tumor is situated, the more rare is the case. The tumor is of all sizes, from merely a little elevation of the skin to the size of a child's head, and sometimes the tumor is diffused, sometimes it is very prominent, and sometimes it is both diffused and exceedingly prominent. It is also of all shades. The skin externally is seen in all conditions; sometimes it is healthy, sometimes it is very thick, sometimes it is inflamed, sometimes it is gangrenous, ulcerated, and fistulous; and sometimes I have seen it very hairy. The subjacent membranes are likewise found in all sorts of states. Sometimes the membranes are diseased, while the skin remains healthy.

The fluid contained in these tumors is exactly like fluid of hydrocephalus, for the most part exceedingly limpid, like rock water, and its quality varies from a few ounces to six or seven pounds. It will exist sometimes between the arachnoid and dura-mater, and sometimes between the arachnoid and the pia-mater—that is to say, it will exist in the arachnoid on either side, and it will be found between the dura-mater and the bones; and it has even been found in the canal which you know runs along the medulla spinalis. When there is a deficiency of bone, there is sometimes a fissure all the way through from the cervical vertebræ down to the os coccygis—that, however, is very rare: sometimes it runs from the last cervical vertebra down to the beginning of the sacrum; or it exists only in the loins: the latter is a common occurrence. The deficiency is sometimes a mere slit; sometimes there is an imperfect evolution of the lateral arches of the bones, and sometimes there is even separation of the body of the vertebræ also. Besides this variety as to the state of the integuments, as to the state of the membranes, as to the situation of the water, and as to the condition of the bones, there is a great variety also, as to the situation of the spinal marrow. Sometimes it is precisely in its natural place; sometimes it runs outside the tumor; sometimes it is distributed upon the sac, and sometimes it has been seen deficient in the affected part. It has been noticed by some, that club foot frequently co-exists with this affection. You know when there is a species of monstrosity in one part of the body, it is very common to a defect in another; if an important part, such as the heart or brain, be deficient, it is very common for more parts to be malformed. In this disease, then, there is frequently club feet co-existing; but very frequently there is not, because they are only minor deviations from the natural structure of the body. I recollect an instance of a child having this disease, where the tumor was situated on the loins, and was surrounded by a considerable quantity of hair, and there were club feet, but the tumor ceased spontaneously; no measures were resorted to for the best part of a twelve month, although when the child was first born there was the appearance of ulceration and even gangrene. The disease, however, entirely disappeared, the surface became flat, and hydrocephalus commenced, of which the child ultimately died.

TREATMENT.

Medicine is of no avail, but cases have been much relieved, if not cured, by puncturing, and by the careful application of a bandage; exactly the same treatment that has succeeded in hydrocephalus. The part is frequently in a state of gangrene, and then no treatment can be borne, but when the employment of remedial measures is admissible, they are entirely mechanical.

There is a disease which resembles in many of its symptoms inflammation of the brain, and yet in a great number of cases it would prove fatal if treated on the common principles applicable to phrenitis. The disease is called

DELIRIUM TREMENS,

This is rather an improper word, because the delirium cannot tremble. It would be better to say, *delirium cum tremore*; but it has derived its name from the patient being in a state of agitation, and being delirious. It may be readily contrasted with the delirium of phrenitis, arachnitis, and hydrocephalus acutus. This state of delirium with universal tremor, is rather the effect of morbid irritability—a disease of irritation—than of inflammation. It is such a state as occurs in fever when delirium exists; it is very much the same condition as that which recurs after great loss of blood, in which there is headache, vertigo, and a disturbance of the mind; it is just such a state as frequently takes place after active inflammation of the brain: when the last stage of phrenitis has arrived, the patient will fall into a state of irritation of the brain, which resembles delirium tremens. The disease is for the most part one not of inflammation, but of irritation, the face is not flushed, but pale. When I spoke of that state in infants which is frequently mistaken for arachnitis, and in which stimulants are proper, I mentioned that the face is not flushed, but pale, or if it be flushed, it is only transiently. In this disease the circumstances are quite analogous. The eyes are not red, and there is no intolerance of light and noise; at least nothing worthy of being mentioned, compared with what is seen in phrenitis, and frequently there is none whatever. The tongue is generally neither dry, brown, rough, nor white, as it is in inflammation, but is usually moist and covered with a white soft creamy mucus. Generally there is no great heat of body, and the skin is not dry, as in most inflammations, but is covered by a profuse sticky, clammy sweat, and sometimes this is of an offensive character. If the sweat be clammy, of course it is secreted in a morbid state, or it would not be clammy, and if it be secreted morbid as to consistency, it may be secreted morbid as to smell, so that the sweats are not only clammy but offensive. This is a very common occurrence. The pulse is quick; a circumstance which you may expect under simple irritation, as well as under inflammation, and at last it becomes very rapid; but it is neither full, nor is it hard. At length, as in other diseases, the pulse will become fluttering, what is called by some *pulsus vermicularis*, like the undulation of a worm. There is constant watchfulness in the disease—the patient can get no sleep, and there is constant delirious talking. He is constantly en-

deavouring to get out of bed, and out of the room, but you may easily induce him to lie down in bed, or lead him back to it, if he have escaped. There are no violent efforts in the disease, no such efforts as are seen in delirium ferox. He will sit up in bed, constantly moving his hands and arms backwards and forwards, but not violently. The patient fancies that his affairs are in a bad state, and that different persons are endeavouring to injure him.

There is, of course, great anxiety occasioned by the patient dwelling on these topics. You may excite the attention of the patient to what you wish for a moment, but a moment afterwards he has forgotten what the subject was; his ideas roll off again to another subject, and he forgets what he had been talking about. There is no spite, no malice in this disease. The whole body is in a state of tremor, and the tongue among other parts. There is great debility; it is a disease attended with extreme weakness, and loss of appetite. There is likewise a catching of the tendons, what is called *subsaltus tendinum*, and a picking of the bed-clothes. It is common in cerebral affections attended with delirium. Now and then there is hiccup. The attack sometimes is very slow, and sometimes very sudden. If it come on slowly, there is at first anorexia, loss of appetite, and want of sleep at night, besides which, the patient is restless during the whole of the day, fidgety and boring people about him with his own matters. The eye at the same time is observed to be dull. It is a disease which occurs in adults and not in young subjects, except in affections which I have already mentioned as analogous to this. It generally occurs in adults who have been addicted to dram drinking, to drinking spirituous liquors, not always, but *generally*. It is said to have appeared sometimes after acute rheumatism, sometimes after injuries of the head, and immediately after apoplectic and paralytic fits, and sometimes after long continued exposure to lead.

The diagnosis of the disease, appears to be made out from the weakness of the pulse; the want of violence in the patient; the want of a flushing in the face, and redness of the eyes; the want of furious delirium; the want of sleep and the circumstance of the patient being in a state of tremor of the whole body, with a tongue not dry, but covered with a creamy mucus, with a skin not dry, but sweating profusely; from the circumstance of the patient talking incessantly about his own affairs, about some imagined distress, in attempting to get out of bed, being everlastingly restless, but easily managed and laid down, or brought back to bed.

TREATMENT.

Exhibit opium in full and repeated doses. It is necessary to give from three to five grains, and to repeat these doses according to circumstances. In some cases it is necessary to give five grains every six or eight hours, and you must continue it till sleep is procured. Three grains would be a proper dose to begin with, and while the patient continues well, it need only be given in small doses, but full doses must be resumed when the symptoms return.

Dr. SUTTON found eminent practitioners in Kent adopting two

different modes of treatment, the one antiphlogistic, and the other narcotic, and he perceived the superiority of the latter. I was sent for to a case, which had been phrenitis, and properly treated as such, but then it was delirium tremens, and the patient's pulse was rapid and soft; his tongue not dry, and his body not hot, but delirium and tremor. Four grains of opium were sufficient to send him to sleep, and he awoke almost perfectly cured. This treatment by opium, and which requires to be backed by good nourishment, is the same that should be adopted after profuse hæmorrhage, after the spurious form of hydrocephalus, that state of the system which resembles hydrocephalus in appearance only—the treatment we should adopt in delirium mitius, and wherever there is great irritation of the brain with debility. Recovery from this disease under the opiate treatment is very frequent, whereas under any other patients continually die. However, the affection will cease spontaneously. It lasts from three days to a week, and patients may then sink gradually, or pretty suddenly; or at the end of that time they may, but it is rare, recover. It has been known to be followed by apoplexy or mania. I recollect seeing a case of this description which terminated in complete mania. Should the disease yield under the use of opium, it may be continued twice a day for some little time, and then relinquished gradually just as the symptoms of the disease decline. Some have recommended a gentle ptyalism to be produced, and some, notwithstanding the profuse sweat, have advised cold affusion. Good food undoubtedly is necessary, and sometimes it is found requisite to indulge the patient with drama. In all cases where patients have acquired bad habits, from the great demand made upon the system after an operation or an accident, you must indulge them.

The disease you must recollect is not always of this nature. You may have patients with this mild state of delirium easily led back to bed, trembling from head to foot, with the tongue in a state of tremor too, and yet inflammation may be present, requiring to be treated as you would treat phrenitis. You will find in such a case as this sufficient signs to point out that it is a disease, not of irritation merely, but of inflammation to some degree; the patient will be more or less flushed, his pulse more or less full and firm, and the delirium will be rather violent. I have seen cases deserving to be called delirium tremens, in which the patient was trembling, talking about his own affairs, believing that he was an injured person, easily led back to bed, with a moist skin, and a moist tongue, and yet this disease was not benefitted by opium, was not cured till bleeding and starvation were had recourse to. You should remember you are not to prescribe for a name, but for the condition of the patient. There may be delirium tremens, but it may be accompanied by more or less flushing of the face, a pulse more or less full, a pulse that will justify you, if not in bleeding yet in purging—in abstaining from opium. Antiphlogistic treatment is sometimes required in this disease, but usually it only required in moderation, and there may be cases where it is perfectly right to employ moderate antiphlogistic treatment, and give opium also. You may pour opium in,

but it will be fruitless without you adopt some antiphlogistic measures. You must keep the head cool, and for this purpose ice is the best thing; you may also apply leeches. It is said by Dr. LATHAM, that blisters are injurious in this disease; and he says that in decided cases of the affection, although it may have come on after apoplexy, opium is useful, provided it is a proper case for opium. The circumstance of the affection coming on after apoplexy, does not prevent opium from being equally proper—that is if the delirium do not arise from inflammation but from mere irritation. After inflammation of any organ whatever, when you have put antiphlogistic treatment in force, opium is proper. I mentioned, in speaking of inflammation, that when you had pulled down the powers of the patient, knocked down the disease, opium answered a good purpose, because, a state of irritation was likely to come on; but if you gave it before, you would be likely to do harm by it. This disease has nothing peculiar in it; it is merely an instance of a general state of irritation. Opium is found useful in irritation of almost all the various organs of the body, provided no inflammation exists, or any that does exist has been knocked down by proper treatment. After death a little congestion may be discovered in the head, and sometimes a slight effusion.

TETANUS

Is derived from the Greek word *τῆσις* in consequence of the great stretching and spasm that there is in this disease. There is a constant rigidity in this affection, a contraction of certain voluntary muscles; but although there is constant rigidity and contraction of many voluntary muscles, not alternating with relaxation, yet there is a much more violent contraction at one moment than at another. There is a constant contraction of the muscles affected, but they are not constantly contracted to the same extent. There are paroxysms of spasm, as well as constant spasm; the paroxysms are more frequent, and also more violent in some cases, and at some periods in the same case, than in others. Synchronous with these violent spasms there is violent pain, and the muscles so affected by spasm are always very hard. Sir GILBERT BLANE mentions a man in the navy who had tetanus, and, instead of experiencing a violent agony from the spasm, he had nothing but pleasurable sensations. It is considered a very extraordinary case, and the disease could not be trifling, for he died on the fourth day. Sir GILBERT BLANE relates the case on the authority of a navy surgeon. This disease may not have its source in the head but in the spinal marrow. These painful spasms affect chiefly the muscles of the lower jaw, of the neck, and of the trunk. When they affect the jaw, that variety of the disease is called *trismus*; when the spasms are such that the body is drawn backwards and arched, the arch being forwards and the whole body drawn backwards, it is called *opisthotonos*; when the body, on the other hand, is drawn forwards, it is denominated *emprosthotonos*; if the body be drawn to one side, then it is termed *pleurosthotonos*; but trismus and opisthotonos are the most common. Sometimes the spasms aff-

ect the muscles of the extremities ; but in general they do not, and the fingers are often flexible to the very last, while the trunk, the neck, and the jaw, are in a state of the utmost rigidity. The muscles of the face, however, are affected, and the consequence of this is that the brow becomes very much corrugated.

The corrugator supercillii of each side suffers in the spasm, and the other muscles of the face are affected, so that the angles of the mouth are drawn up into an agonizing expression, and the patient is compelled to a wretched grin, and no doubt this spasmodic grin is greatly increased by the agony which the patient suffers. The nose is drawn up, and the eyes are fixed, staring, and startling. The tongue is continually protruded during the patient's sleep, if the jaw be not completely closed ; and spasms continually affect the masseter and the temporalis muscles, so that the jaws snap, and the tongue is caught, wounded, and bleeds. The diaphragm too is greatly affected, on which account there is a catching of the breath, and violent pain at the end of the sternum ; at any rate these spasms produce a catching of the breath, and, I presume, the pain at the end of the sternum arises from the same source. From the spasmodic state of the abdominal muscles, the abdomen is exceedingly hard and rather arched ; it appears as hard as a board. The least motion, or the least attempt at motion, frequently excites these violent spasms. The sphincter ani seems sometimes to be violently contracted, so that a clyster cannot be given : this, however, is not invariably the case. From this violent muscular action there is great heat and great sweating. Dr. FRIBO, of Geneva, found the temperature of the body 110 degrees in the axilla. In this disease the pulse is quick, exactly in proportion to the severity of the affection : it is much quicker at the moment of the aggravation of the spasm than at any other time. The first symptoms of the disease generally show themselves about the neck and tongue. Usually the first symptom of which the patient complains is a difficulty in mastication and deglutition, and then there is generally a slight stiffness about the back of the neck.

Sometimes the disease proceeds very rapidly, and sometimes very slowly ; so that it may last only one day, destroy life in twenty-four hours, or it may last many weeks ; it frequently kills before the fourth day ; and when it does terminate fatally, it generally proves so before the ninth day. Dr. PARRY mentions that a horse attacked with this disease did not die before the eighteenth day of seizure. When a patient dies, it is either during the violence of the paroxysms, or he is completely exhausted. The mind is usually quite unaffected in this disease, except sometimes towards the last. The bowels are always costive. If the patient recover, it is generally by a very gradual cessation of the symptoms, and the disease lasts from two to four weeks, and sometimes six or eight. It is from these long-continued cases that recovery usually takes place. It now and then, of course, remits, and then again it is aggravated. When death has occurred, in most cases nothing is found ; and therefore the morbid appearances which are sometimes found are not essential, but incidental.

MORBID APPEARANCES.

Occasionally you will find inflammation of the spinal marrow, but occasionally the congestion so common about the spinal marrow, if the body lie long, has been mistaken for inflammation of the spinal canal. In the ordinary position in which dead bodies lie, the blood gravitates towards the spine; (and you know that a great quantity of blood is seen in other parts) and if the body be not soon examined, and the weather be hot, you may expect great redness of the spinal membrane from the blood effused there, and yet there may be no inflammation. When, however, you consider that more frequently than not there are no signs of inflammation, one cannot but conclude, that although inflammation of the spinal marrow may sometimes give rise to tetanus, yet the disease is not necessarily the result of inflammation of that kind.

As to the nature of the affection. It is a peculiar state of that part of the nervous system from which the nerves spring; or in which they terminate; that part of the brain or spinal marrow which is immediately connected with the nerves of the voluntary muscles. That is the situation of the proximate cause, I have no doubt. The mind is unaffected in the disease entirely, and so is sensibility. It appears to be an affection of the voluntary muscles through the medium of the voluntary nerves; and of the voluntary nerves, I presume, through those parts of the brain and spinal marrow with which they are connected. The disease is far more common in hot climates than in temperate ones, and more common in hot seasons than in those which are mild. It appears in hot climates and hot seasons, and it prevails most from the want of ventilation, the want of good food, the want of comfort, and the want of attention to the bowels. On this account it is much less frequent now in the army and navy than formerly. Dr. LIND says that in the West Indies, at the end of the former war, five cases of amputation out of six proved fatal through the occurrence of tetanus. Dr. DICKSON, physician to the Fleet, in the *Medico-Chirurgical Transactions* states there were not above six cases of tetanus under his care, arising from amputation, in the West Indies, for upwards of seven years. He ascribes it to the improvement in the treatment of sailors, both in sickness and health and being less exposed to noxious causes. Dr. McARTHUR, of the Naval Hospital at Barbadoes, states that only two cases occurred there in the course of six years, and yet there were many wounds, and many amputations.

Fever prevails most amongst those who manifest a want of cleanliness, and so it is said of cholera and typhus. But diseases very dissimilar to each other will be predisposed to by a want of comfort; the more the comfort of the body is attended to, the less is the influence of all noxious agents and noxious circumstances. Males are thought to be more disposed to the disease than females, but this is not proved, because males are more exposed than females to the exciting causes of the complaint. It is also thought that the strong and muscular are more liable to it than the weak. I have seen a great number of instances of tetanus in persons of all sorts of constitutions, both strong and weak. It is supposed to occur particularly in young

adults, but it occurs also in the West Indies in infants. Children there—but now less frequently than formerly—die of locked jaw, so that one variety of the disease was called *trismus nascentium*.

The exciting causes of the disease are cooling when the body is hot—sudden refrigeration; but the most common is wounds of the hands or feet and among wounds of the hands and feet, it is wounds of the fingers and toes that most frequently cause it; and among wounds of the fingers and toes it is most frequently wounds of the thumbs and great toes that produce it. Every wound has not an equal tendency to produce tetanus; for contused wounds much more frequently occasion it than any other. A wound will sometimes not produce the disease till the person is suddenly exposed to cold, and then he will have it immediately. This is a similar occurrence to what I mentioned regarding ague, viz. that a person may be exposed to the causes of ague, and yet the disease will not appear until he is exposed to cold and wet: the cause then becomes efficient. So a wound frequently will not produce tetanus till another cause of the disease takes place—sudden refrigeration, and then the affection makes its appearance. The reverse, however, of this sometimes happens; the person is exposed to wet, but the disease will not shew itself until a wound takes place. It occurs in all states of the wound—in healthy and unhealthy wounds; sometimes when the wound is nearly healed—sometimes when it is perfectly healed. It occurs, too, whether the wound be large or small. I had a case of tetanus, as severe as any I ever saw, where there had been merely a contusion of the thumb. There was no pain—no irritation; the nail was separated and loose, but under it all was dry, no secretion was going on, and there was no irritation to be found; and yet that contusion of the thumb produced the disease. There is a case mentioned in the Transactions of the London Medical Society, in which the disease occurred after a burn, at the time when there was merely a dry scab on the leg and no inflammation around it: nay, the disease has sometimes declined and ceased, while the wound every day grew worse and worse. I had a case of tetanus from compound dislocation of the great toe, in which the disease declined and ceased while the pain continued in the foot; inflammation and suppuration went on, accompanied by great suffering, and yet the disease was declining all the time. The *trismus nascentium*, the lock-jaw of new born infants, has been ascribed to the state of the navel—to the condition of the parts united by the umbilical cord; but it appears that it is greatly disposed to by the unhealthiness of the surrounding circumstances in which the children of the West Indies are placed.

Sir JAMES M'GRIGOR states that it appeared, a person wounded was safe, as it regarded tetanus, if the disease had not begun by the twenty-second day after the infliction of the wound. But Sir GILBERT BLANE states that he has seen the disease occur at all periods of a wound between the second day and the end of the fourth week. Sir JAMES M'GRIGOR found the twenty-second day the limit; but Sir GILBERT BLANE has seen it up to the end of the fourth week from the time of the infliction of the wound. Dr. PARRY mentions seeing a horse seized with the disease on the thirtieth day. Tetanus is not

only common in horses, but lambs are affected with it, if their ears be bored with a red-hot iron to check the rot. It has been said to arise frequently from intestinal worms.

In almost every case you observe that the tongue is bitten. Before the mouth is completely closed, and the patient falls asleep, the tongue is protruded by the spasms: the spasms affect the entire set of muscles, and therefore you may expect, in most cases, a biting of the tongue. A second symptom, very characteristic of the disease, is the pain at the *scrobiculus cordis*. It is a pain not increased by pressure, but a sudden, violent, sharp, stabbing pain; it may be more or less constant, but at periods it is exceedingly severe. Then, again, you have a peculiar swelling and rigidity of the muscles; it is spasmodic, constant, not convulsive; it is what they call *tonic spasm constant*; not spasm alternating with relaxation. Then, again, you observe the peculiar posture into which the body is drawn—*opisthotonos*, *emprosthotonos*, *pleurosthotonos*; and in *trismus* you find the jaw to be closed, or nearly so, without any inflammation around, and without any organic disease to account for it. There is no terror in this disease—no excitement of mind—no morbid corporeal sensibility, although the patient is miserable enough from agony, yet there is no *mental* distress, neither is the body extraordinarily sensible to external applications. As to rheumatism, when that occurs it chiefly takes place in the joints, and not in the bellies of muscles; or if it do, the joints are affected likewise; and there is no spasm, but a difficulty of motion, great pain when the patient moves, and many joints are frequently affected at the same time. As to the distinction between a locked jaw and rheumatism, you will observe, that, in the latter, other joints are most probably affected: you may find the jaw stiff, but there is violent pain flying from one part to another, and the patient is not subject to a snapping of the tongue. In rheumatism, too, there is generally tenderness in some part of the jaw, and generally there is a great deal of heat, as well as constant pain. Tetanus, more especially *trismus*, is very frequently hysterical, but this occurs, in ninety-nine cases out of a hundred, in females; and there are other hysterical symptoms—such as *globus hystericus*, great flatulency, and irregular convulsions. If hysteria be present, and you see *trismus*, or any other form of tetanus, you may take it for granted that it is an hysterical affection altogether. I mentioned, when speaking of ague, that tetanus sometimes occurs during that affection, particularly during the cold stage. The utmost that I have observed is a constant tonic spasm of the arm—that is to say, I had two patients under my care whose hands were clenched during the cold stage. Narcotics sometimes have occasioned this disease. A tobacco-clyster will sometimes occasion it, but it is strychnine more particularly which has this effect. In these cases, if you knew that poison had been swallowed, you would ascribe it to that; but if a narcotic had been taken, in addition to the tetanus, I presume in most cases you would find some other symptom present. The prognosis is always bad, unless it be a sympathetic affection. If hysteria be present, or the disease have been produced by a narcotic, the prognosis then

would not be so bad ; for the narcotic will frequently be got the better of. In such circumstances, the prognosis is very various. If, however, the disease be what is called *traumatic*—if it arise from a wound, or if it arise from a worm in the intestines—few persons recover from it. But every description of tetanus, whatever be the cause from which it occurs, may be cured. Dr. PARRY states that if the pulse be not above 100, or 110, up to the fourth or fifth day, patients almost always recover ; but if the pulse be quicker early, the disease almost always proves fatal, and that there have been but very few recoveries when the pulse has been 100 the first day. There is less danger in proportion to the length of time which the disease continues.

TREATMENT.

If the wound be inflamed, or if there be any internal inflammation (it is said that enteritis sometimes exists in the disease) or if there be fulness of the system, undoubtedly one would bleed. You are not to imagine, however, that because the blood flows freely, the patient must be benefitted by blood-letting ; because, while there is such violent action of the voluntary muscles, the effect must be the same as that which we every day procure in common venesection, by making a person contract his hands so that the muscles may press on the internal veins. When all the muscles are in a state of violent spasm, as is the case of tetanus, you may expect that the circulation will be irregular—that a great quantity of blood will be forced to the superficial veins—and consequently that the blood will flow freely ; and bleeding is not at all useful unless the wound is inflamed, or there is some decided internal inflammation, or the patient is clearly in a state of plethora. Purgatives are often useful, especially in the cases of children, when they are labouring under trismus nascentium. I believe there is benefit in general from clearing the intestines well out ; and some cases have done well under the use of purgatives in adults, where there has been some irritation in the intestines—worms, or whatever else—producing the disease. In general both bleeding and purging do good : it is always right, however, to clear out the bowels. I think the oil of turpentine is the best. And in cases of hysterical locked jaw I have seen it produce an instantaneous effect. I have seen several instances where, in trismus of an hysterical nature, the jaw opened the moment an injection of oil of turpentine was passed up, and in other cases I have seen it open a few hours afterwards. If two or three ounces of this medicine cannot be got down the mouth, and it is of no use to give less, you may exhibit three ounces by the rectum diffused in gruel. Should this not answer, a large dose of calomel should be given. If pills cannot be swallowed, you may place it in the mouth. Mercury to ptyalism has been said to be beneficial. Opium and other narcotics have been tried in this disease, but the agency of all remedies is greatly resisted, and therefore very large doses of narcotics are borne. Dr. MORRISON, who has practised in the West Indies, says that he has been in the habit of treating these cases, and that it is very common to give one hundred drops of laudanum as a starting dose, and follow it up every two hours, increasing

each dose by one-third of the preceding dose. He also allows the patient wine and ardent spirits, employs the warm bath, and exhibits mercury to ptyalism, paying due regard to the bowels; and that the result of this practice was the recovery of more than one-half of his cases, although the tetanus was of a traumatic character. However, we have all seen opium exhibited in a large quantity, even to stupefaction, without doing any good. Prussic acid appears to have failed entirely in this disease; it has been frequently and freely given, but it has failed, and so likewise has belladonna. Some cases appear to have done well by means of an injection of tobacco; it appears to have relaxed the spasm, and cured the disease. Dr. LATHAM praises opium and ipecacuanha, which he says produces copious sweating, that the success has been very great from a combination of these remedies. The warm bath appears to have done no good, and sometimes to have been really injurious; and, on the other hand, the cold bath and the cold affusion have relaxed the spasm, but sometimes they have killed the patient at once, as if he had been shot. I presume, if the cold bath or cold affusion be employed, it ought to be at the moment that the violent spasm is on. I know of an instance where a patient was taken out of bed, in the hospital, put on a chair, placed in a tub in the middle of the ward, and a pail or two of water dashed upon him, and he fell down dead as if he were shot, and yet there are cases in which that very remedy appears to have cured the disease. There are many cases of the latter description on record. If there be error, it consists in the cold water not being thrown on the patient when he is at the very worst. The moment you find a catching of the breath from a violent spasm, I would dash on the water, for I think its agency in that case would not be sufficiently severe to produce danger. Sir JAMES M'GREGOR says the cold bath is improper. Blistering along the spine *may* be serviceable, but unquestionably it is a very cruel remedy.

Sir JAMES M'GREGOR says that all things (except one that I do not see spoken of—iron) have been fully tried in some hundreds of cases, and there is little or no dependence to be placed upon them. I have looked over the list he has furnished, and upon my word there is almost every thing that ever was used in medicine. Sir JAMES M'GREGOR says that the mode of treatment is certainly still to be discovered: and as there is no analogy to guide us, there is little hope that any remedy will ever be found out. Recovery has taken place under all means of treatment, and recovery has taken place under no means. It struck me, from seeing the benefit that iron produced in St. Vitus's dance, that as this was a similar disease, although infinitely more severe, characterized, not by a slight catching of the muscles, but by violent spasm, yet that iron might still have the same effect. I saw clearly, that, in the exhibition of narcotics, we were wrong; because you may give opium till the patient is stupid, and yet the disease generally proves fatal—at least in this country. A case occurred to me, iron was fairly exhibited, and the man recovered. The case was one of traumatic tetanus, arising from compound dislocation of the great toe. It was a well-characterized

case, and several persons went to look at it. The carbonate of iron was made into an electuary, with double its weight of treacle, and each dose was mixed with a quantity of beef-tea, and stirred up well as it was going into the patient's mouth; being given to him every two hours. He took it *ad libitum*, and the man recovered. It was not long before I had another case, and that arose from a contusion of the thumb, and was the case in which I stated the nail was separated. This was as severe a case as ever I saw; I never saw one which did well, more severe. In this patient it was got down in a still greater quantity; there was no limit fixed, and it was found that he had taken two pounds in a day! His bowels were carefully attended to, and an injection was given three times a day. The iron came away in large lumps, very similar to those which come from a horse, and the lumps were perfectly red. However, the man in two days was decidedly better.

A third case occurred in a boy who had had a chilblain on his heel, or a little higher up. He was brought to the hospital in a most frightful state, and the disease was so violent that I had no hope of doing him good, fearing that he would die before the remedy could be brought into operation upon his body. It was prescribed for him, but he died before twenty-four hours had elapsed. This is a medicine that will not produce an immediate effect; to produce its effect upon the system, iron must be given for a few days. This patient died in a violent paroxysm. I saw him in the afternoon, about one or two o'clock, and he died early the next day; so that it was a case in which the remedy could not exert its influence. It is not a remedial agent like bleeding, which produces an instantaneous effect; you find, in St. Vitus's dance, that it is sometimes months before it produces its effect; and so it is in tic douloureux, and also when you give it as a tonic. Whether these cases were cured by the iron, I dare not assert. I employed it from the analogy of the affection to St. Vitus's dance, and both cases were traumatic, and the patients did well—not by lingering out, but in two or three days they began to mend, and were well speedily. There is a probability, but no certainty, that the disease was cured by iron.

I mentioned the circumstance to a gentleman whom I met in consultation some time ago, who had practised in the West Indies, and he informed me that, in consequence of the publication of those cases in the Medico-Chirurgical Transactions, he had used it in the West Indies, and I think he said that eight cases recovered out of ten, and in the two cases which did not recover, the symptoms were so severe, the jaw so thoroughly closed, that it was impossible to get it or any thing else down the throat. There is a case mentioned by Sir JAMES M'GRIGOR in the sixth vol. of the Medico-Chirurgical Transactions, and also in his Reports, of the diseases of the army in the Peninsular war, which proceeded from a slight wound in the finger. The patient, a soldier, was carried in a bullock car after the battalion to which he belonged, in a severe state of tetanus, in the midst of pouring rain, which completely drenched him in the early part of the day, the heat being 52 degrees only, and then they as-

cended the highest mountain in Gallicia, the snow on the summit of which was knee-deep, and there the temperature was only 30 degrees. He was exposed in this condition from six o'clock in the morning till ten o'clock at night, and arrived at his journey's end half starved from cold, but perfectly cured of his tetanus. I met a similar case published in 1827. A horse which was in a state of tetanus happened to be in a wet park, and was drenched with rain, precisely as was the case with this unfortunate man, and the horse also did perfectly well. I think, that a disease of violent excitement as this is, the constant, not *sudden*, but *constant* refrigeration, by means of a low temperature, united with moisture, is likely to be of great service.

Some have proposed a whirling machine, to make the patient giddy and powerless, but I do not know that it was ever attended with success. The removal of the part, if there be a wound, is perfectly useless. I had a case of tetanus some years ago, in which an operation was proposed, in consequence of the disease having arisen from a compound fracture of the leg. The extremity was cut off, but the patient was no better. It is found in almost every case that the disease continues just the same. I have been unable to find only one instance where the removal of a part appeared to be attended with the removal of the disease. I have heard of such a case. Whatever remedies you employ, always introduce a cork, or something of that kind into the mouth, to save the tongue, or it will be dreadfully bitten.

When the disease runs on and becomes chronic, it is necessary to support the patient well: if you do this, you will give him a greater chance of recovery. Dr. CURRIE, in the Transactions of the London Medical Society, gives an account of a man labouring under tetanus so chronic as to last forty-two days, and who in this time drank one hundred and ten bottles of port, and yet not the least approach to intoxication occurred, and he recovered. There is also, in the same paper, an account of a horse labouring under tetanus, which, during the disease, drank as much port wine as he was worth, and he recovered.

LECTURE XLIX.

DISEASES OF THE HEAD AND NERVOUS SYSTEM.

THERE is another disease, bearing a certain resemblance in some of its symptoms to tetanus,—I mean

HYDROPHOBIA.

This disease is so named, because it is imagined there is a fear to plunge into, to swallow, and even to look at water. However, there is a fear of swallowing in many nervous affections. On the other hand, the fear of water—the fear of swallowing, is not universal in hydrophobia. People will take an antipathy to all liquids, and sometimes, in common sore throat, there is such a spasmodic disposition in the throat, that the attempt to swallow excites great irritation, and

the recollection of it excites fear at the very sight of water, while the attempt to drink is terrific. On the other hand, you will see persons swallow very well in hydrophobia, and put their hands into cold water; dogs will swim across a stream, and some persons it is said, drink in hydrophobia quite well to the very last.

In many cases of this disease there is as great a difficulty in swallowing solids as liquids. Still, in this disease it must be allowed that it is most usual for a person to have a fear of swallowing, touching, seeing, or hearing the sound of liquids. Sometime ago there was a patient in St. Thomas's hospital labouring under this disease, and the circumstance of one of the dressers who sat up with him making water within his hearing, threw the boy into a violent agitation. But this dread of drinking, and the dread of touching water, is only a symptom, and there can be no doubt, that death would occur equally if it never happened. The real character of the disease is to be taken from the circumstance of the extreme sensibility of the surface of the body, the extreme sensibility of the nerves of deglutition and respiration; so that any attempt at swallowing, the application of cold air to the surface, the application of a drop of fluid to the surface, whether warm or cold, if made suddenly, as by sprinkling—even the circumstance of an insect crawling on the face or hands, or the slightest agitation of the bed clothes—will produce a catching of the breath, perhaps a sudden inspiration, just such as we experience when we step into a cold bath. The diaphragm descends just as if cold water were thrown upon us, or the wind blew suddenly upon us. Contemporaneous with the descent of the diaphragm there is a violent spasm about the larynx and pharynx, so that swallowing is impossible, and likewise breathing. The diaphragm will descend, but a spasm of the glottis occurs, and the air will not go down. The glottis will relax again, and a number of successive closures take place, and at the same moment, from the fear of being choked, there is extreme anguish and terror. Even noise and light will produce this; not merely the circumstance of cold air blowing on the patient, but the mere draught occasioned by a pocket handkerchief, or waving your hand, so as to cause the air in full force against him, may produce this violent spasm. If you take a looking-glass, and allow it to play before the eyes, or if you make a loud sudden noise, this descent of the diaphragm, and this closure of the glottis immediately take place. Bright colours will have the same effect as the use of a looking-glass, at least when the disease has become very severe. From the recollection of what is suffered, the very mention of swallowing will produce extreme agitation, and every muscular effort whatever has the same tendency; and if the patient be compelled to make an effort to swallow when he really cannot, it will throw him not only into agitation, but absolute convulsions. There is extreme anxiety of mind and extreme despondency, and you see the patient looking around him with an eye of suspicion; he has a great aversion to strangers, and the countenance is expressive of his anxiety and distress. You notice, too, in this disease, very frequent sighing; if you sit by the bed-side, you hear the patient continually sighing. Breathing is not carried on in a

regular uniform manner, but is altered. The patient is extremely restless, tosses about his hands, rolls his eyes, and whatever he attempts to do, he overdoes. Such is his agitation, that if he attempt to rise he makes more effort than is necessary, or if he attempt to take any thing into his hand, or swallow, he dashes the cup to his mouth, and all goes down together.

There is such extreme irritation both of body and mind, that violent fits of passion are induced, and these are more particularly observed on a proposition being made to swallow, and in their fury patients will sometimes bite; not that they will bite like a mad dog, but the temper is so irritable in the disease that they will bite a stranger. This I have seen, but I believe it depends very much upon the natural temper of the individual; and yet the mind is so strong in the midst of this, that at the moment they have attempted to bite or strike, they will apologize, instantly regret it, and endeavour to make all the amends they can. They are conscious of their morbid irritability, and they beg others to get out of the way lest they should injure them. They will make very great efforts to swallow, in order to please, but for the most part, after declaring they will swallow, or after taking up the cup into their hands, as soon as they have got it near their mouth they turn their heads away, and declare it is impossible. Sometimes again they have more firmness of mind; they will open their mouths, put the liquid into it, and then a regular paroxysm of the disease will occur. They are seen sometimes so to command themselves, that they will not only drink, but even wash their hands. These paroxysms come on, however, without any external excitement, and when the disease has become more violent, these paroxysms occur from time to time without any external circumstance having occurred to provoke them. There is for the most part sleeplessness, or if the patient do drop asleep, he wakes in great agitation; and sometimes the sufferer is delirious. The delirium, when it does occur, is generally of a peculiar nature, and the patient will talk violently of the past as though it were present, and yet in a moment he will become calm and rational; at last, however, there is sometimes complete delirium. The eyes, towards the close, do not roll, but become red and glassy; the pupils are dilated, and the mouth is very clammy. There is extreme thirst, and from the clammy nature of the secretion the patient suffers as much as if his mouth were dry. It very frequently makes them cry out for something to relieve their thirst, and yet when the fluid is brought to them, for the most part they cannot take it. From the clamminess of the mouth, you will see them continually hawking and scraping their tongue against their teeth, and in the midst of their rage they will spit at you. They will sometimes put their fingers into their mouth, just as you will see monkeys do, and persons in delirium, and pull out a very viscid secretion. The pulse is very rapid and irregular, and during their agitation it is particularly so. It is for the most part feeble at last, but it is constantly quick, even when respiration is slow. Patients generally at last sink very rapidly.

This affection may last from rather less than twenty-four hours to

six or seven days; but they generally die in two or three days, or at the utmost on the fourth day from the first appearance of the true signs of hydrophobia—the dread, the fear, the difficulty of swallowing and the extreme sensibility of the surface. I had two patients with this disease, little girls, who died in less than twenty-four hours from the symptoms being first observed. In two American cases which I have read, one occurring in a subject under four years of age, and the other in a person aged seventy-three, both patients died on the sixth or seventh day, showing that the duration of the disease has not any relation to the age of the patient. I might have imagined, from having had two patients under ten years of age die in less than twenty-four hours, that the young die soonest; but here is a case of a child and an old man, both of whom lingered the same length of time.

The first symptoms in hydrophobia are uneasiness or feverishness, and a general feeling of indisposition, a dizziness in the head, together with chilliness and flushes, and these symptoms may continue some days. Dr. PARRY states these symptoms lasted five or six days, and I believe they may go entirely off, just as other specific diseases, diseases from morbid poison, are seen to do. We all know, in the case of gonorrhœa, that a person will have every trait of the affection one morning or one evening, and it will entirely go away, although he knows he has been where he was very likely to contract the disease. Continued fever will thus go off, so I believe will plague, and ague certainly will do so. I believe it is just the same in hydrophobia. I saw two little girls, sisters, who were bitten at the same moment by a dog, and in the same place, the face. One of them died, and the sister had exactly the symptoms I have described as ushering in hydrophobia, but after lasting four or five days they ceased, and she was cured. After these symptoms have continued, perhaps a couple of days, suddenly the person is surprised by a difficulty in swallowing liquids, and all at once he finds a spasm and an impossibility of swallowing. At the same moment, perhaps, he has great anxiety and great terror, or perhaps a draught of wind suddenly blows upon him, his breath catches, and he wonders, and also those around him, what is the matter. That was the case in a boy whom I saw some years ago. A person went into his bed-room in the morning, and on opening the door the draught occasioned by it came full upon him, and he was observed to go almost into fits; the sudden impression of the air took away his breath, and agitated him to this violent degree. In the course of the disease there is sometimes a remission; the disease does not *necessarily* go on in an uniform tenor. Dr. SATTERLEY had a patient with fits of biting, and between these he was perfectly well—even took warm fluids, and had a sound sleep. The disease is not so continuous but that in some persons there will be a decided remission, so that the patient can absolutely swallow liquids very well, and will go into a quiet and sound sleep. Some say, that there are absolute *intermissions*; that the disease altogether, every symptom of it, will sometimes cease for a time, and even become *periodical*! There are even cases of remission and recovery men-

tioned as having occurred in dogs, but it is doubtful whether recovery ever took place in the human subject.

Sometimes you will have peculiar symptoms, such as are not observed in ordinary cases. One occurred at Guy's Hospital, and was published by Dr. MARCET in the first vol. of the *Medico-Chirurgical Transactions*. From some disturbance of the brain or the olfactory nerves, the patient complained of an intolerable stench around him. This is sometimes observed in ague. In some cases too—from irritation, I presume in another part of the nervous system—there has been an erection of the penis, and an oozing from the mouth of the urethra. Sometimes in this disease there is no inability to swallow either liquids or solids; there is a mere tremor, a mere agitation, and that not very considerable, great debility, rapid pulse, and extreme restlessness. This has been said chiefly to occur when a cat has inflicted the bite. Dr. FOTHERGILL mentions this circumstance in the fifth vol. of the *Medical Observations and Enquiries*, but it is not an universal fact. I saw a man who had been bitten by a mad cat, eat a pint basin full of bread and milk an hour or two before he died, and even then there was no difficulty whatever in swallowing. All his symptoms were, rapid pulse, extreme restlessness, and great agitation. He thought nothing about the cat—his mind seemed at ease on that subject, and he sat up, if you wished: during the whole of the case there was no delirium whatever. The man died, I believe, on the second day after the commencement of the symptoms. He had been bitten six weeks before by a strange mad cat, but had forgotten it, the friends alone remembering the circumstance. This is not universally the case; for you will find a case published by Dr. A. T. THOMSON, in the *Medico-Chirurgical Transactions*, where hydrophobia, well formed in every respect, arose from the bite of a cat.

This disease affects children as well as adults. One seldom hears of women labouring under it; but children of both sexes, and men more frequently than either, become its victims. Infants may not be exposed to a rabid animal, and the reason that it attacks men more than females is because the former are so much more out of doors than the latter. Dr. PARRY mentions a child only three years and a half old affected with the complaint.

The contagiousness of this disease has been denied. Mr. WHITE of Brighton, lately denied that this was a contagious disease, and from his conviction that his opinion was correct, he inoculated himself with some of the saliva from a rabid animal, and did so with perfect impunity. So perhaps he might have gone astray and not have contracted syphilis or gonorrhœa; but that would be no proof that there was no such contagion. GERARD also denies it; and there could be no other reason for denying it than a desire to be peculiar. Dr. FOX denied the contagion of plague, but he was soon convinced of his error. If the disease were an imaginary one, why should children have it who have never heard of it? Adults have died of the affection without recollecting that they had been bitten. The thoughts of the disease have not preyed on their spirits in the least; but they have been suddenly surprised by it, and it has never occurred to

them what the disease was, or that they had formerly been bitten. An instance is mentioned in the Medical Gazette, Dec. 27, 1828, by Mr. GODERICH, at Fulham, of an old man, sixty years of age, who had been bitten and died of the disease, but was unconscious of its nature to the last. Two cases are mentioned by Dr. PARRY in which the bite was forgotten, and another case in which the bite was spoken of with the greatest indifference. In the last case I had, the boy knew that he was bitten; but he thought nothing of it, and never seemed to attach the least importance to it. That there is such a disease, that its character is so peculiar, and that it unquestionably arises from a morbid poison, cannot admit of a moment's doubt. It is also to be remembered, that many persons who are bitten, and fancy they will have the disease, never have it at all. I have seen many persons bitten by dogs wash the parts, take physic, have the parts cut out, and do all they could to torment themselves into the disease, and yet they have never had it.

Spurious cases of nervous fever or nervous irritability are very different from these. If the case be spurious, the difficulty in swallowing generally occurs far too early after the bite. A certain period, usually some weeks, elapses between the bite and the appearance of the disease; but where persons have a difficulty in swallowing, from mere nervous terror, it generally begins at an early period. There is much too early delirium and general convulsions; the agitation of the mind arising from fear brings on a degree of insanity. Then, again, in the spurious form, there is generally no catching of the respiratory organs. The great feature of this disease is the sudden inspiration, as though the patient were plunged into cold water, and this produced not only by an attempt at swallowing, not only by the sight of water, not only by speaking of water, but by a breath of cold air, or the crawling of an insect upon the surface, or any sudden impression. Patients who have only fancied hydrophobia have a difficulty of swallowing, but they forget to have a catching of the breath. They are not aware that that is a symptom; they only think of the difficulty of swallowing liquids, and therefore that symptom only arises: they are not conversant enough with the disease to know another remarkable symptom, and therefore that never takes place, or if it do, it is only a simple local affection producing irritation of the organs of respiration. So characteristic of the true disease is this sudden but deep inspiration, that when a paroxysm takes place during sleep, it always begins with it—so peculiar is it to the disease, so pathognomonic is it that when a patient is seized with a paroxysm asleep, he always awakes with a sudden deep inspiration. In the true disease, too, patients, in order to please you, will make every attempt they can to swallow. They will say they cannot, but then they will try; they will make every possible effort, and succeed to a certain length, and very frequent succeed entirely; whereas, if a person have the fancied disease, he concludes it is quite impossible; he will not hear of such a thing, and considers it almost an insult to him for you to suppose that he can swallow. In the fancied disease the patient has not sufficient firmness of mind to make the attempt, and shudders at the

very sight or name of liquid ; whereas, in the true disease, patients will not only do this, but put their hands continually in cold water.

These people are not surprised by the disease ; it does not take them suddenly, but they anticipate it ; they look forward to it with a low melancholy, and then at last they begin to find they cannot swallow ; whereas, in the true disease, the symptoms come on suddenly. In the spurious affection, also, there are generally a variety of nervous symptoms, such as globus hystericus, and other symptoms common to nervous derangement. There are not the usual effects in the spurious disease from cold air, the sudden impression of cold air, and the sprinkling of cold water ; certainly the former do not produce the agitation which they occasion in the true disease. It is to be remembered that the disease may be spurious when a person has actually been bitten by a mad dog ; he may have been bitten, and the poison may not have taken effect, and yet the person has agitation of mind sufficient to produce difficulty of swallowing. It is probable that it is in such cases that persons have been said to recover from hydrophobia ; but they have done no such thing.

After death there is sometimes found a fulness of the vessels of the head, and sometimes marks of decided inflammation, and not only in the head, but within the spine. Sometimes there is an effusion of serum, either pale or bloody ; sometimes lymph has actually been found effused, particularly about the base of the brain. In the case of the old man to whom I have already alluded, as having died without suspecting the nature of his affection, there was inflammation of the whole of the base of the brain, of the spinal cord, the cerebellum, the cruri cerebri, and the two thalami nervorum opticum, and the corpora striata were redder than natural. This was an inflammatory case of hydrophobia ; but in other cases no such thing has been discovered. I have seen patients opened where there was no effusion, no redness, nothing that would lead the best anatomist to say that the brain and spinal marrow were not perfectly healthy, just as is the case in tetanus. Sometimes there are red spots found in the fauces, larynx, trachea, and in the bronchi, and likewise in the stomach. In a great number of cases there is considerable redness of the glottis and epiglottis, and great congestion of the lungs. The latter circumstance you would *a priori* expect, in consequence of the difficulty of breathing, and the spasm which takes place and disturbs their functions. Sometimes, however, nothing has been found from head to foot. MAGENDIE says that sometimes he has opened dogs and found nothing. It appears, therefore, that the disease like tetanus, is not necessarily of an inflammatory nature. Now and then signs of inflammation may be found ; it may be in some cases an inflammatory complaint, but in many cases it is not.

Some from observing redness and congestion about the air-passages, and others from observing similar appearances in the alimentary canal, have ascribed hydrophobia to a morbid state of these parts ; but I think the extreme sensibility of the surface of the body, the extreme agitation on attempting any muscular effort, the convulsive movements that take place in swallowing, the spasmodic catching

of the breath, even on touching the lips with liquid, or the application of cold air to the surface, the anguish and irritability of the mind the great suspicion, and at last delirium, all shew something more than an affection of the lungs or stomach. Such symptoms as these indicate an affection of the nervous system. In tetanus there is no morbid irritability either of body or of mind; there is only a spasm of the voluntary muscles, and this in all probability arises from the origin or termination of the nerves in the head or the spinal marrow; and such a state is not necessarily, I said, inflammatory, though occasionally inflammatory signs are found. But in hydrophobia there is no irritation of the voluntary muscles, in general, but a morbid sensibility of the nerves of sense, particularly those of touch and of those running to the muscles of deglutition and respiration; and, in addition to this, the mind is altogether in a state of suspicion and irritability, shewing that it is the centre of the nervous system which is particularly affected. What it exactly is it is impossible for me to say; but so far we may trace it. One cannot attribute it to the nerves, or to that part of the brain connected with the nerves of deglutition and respiration, because we see extreme suspicion of mind, extreme mental anguish; so that there is something more than that; and we see that many parts of the nervous system are affected. We may venture to say that the state is not necessarily inflammatory, because bodies are continually opened in which no signs of inflammation are discovered. The blood in this disease, is not buffed, neither is the urine high coloured; on the contrary, it is pale. The tongue is perfectly clean; the mouth is clammy, and is filled with a viscid mucus. The pulse is not full; it is not at all an inflammatory pulse, but it is nevertheless very rapid and irregular—frequently very much so. Many persons have not found any inflammation whatever; but there have been cases where local inflammation has existed, particularly at the base of the brain. The thirst in the disease does not arise from an inflammatory state, or from feverishness; but is either a part of the disease, arising from the disturbance of the nerves, or from the clammy secretion of the mouth. You know that when all the parts of the mouth are dry, or are covered with only a viscid secretion, and not moistened by a thin fluid, thirst is the necessary consequence. There is in general only morbid heat from time to time when the patient is particularly excited, I will not pretend to say what the state of the nervous system is any more than in tetanus. We may limit the disease to the nervous system, and particularly to the nerves of external sense—the sense of touch and the nerves running to the muscles of deglutition and respiration, together with a general excitement of the brain.

The exciting cause is a secretion from the mouth of a rabid animal; but I do not know that we have any proof as to whether it is the saliva or the mucus. It is said to be the saliva which is poisonous, and it may be that fluid.

The saliva of the human subject is equally poisonous with that of the brute, or at least also poisonous; for MAGENDIE says that he inserted the secretion from the mouth of a rabid human being into dogs,

and they became diseased. After the poison has been applied, there is usually an interval before the appearance of the disease of from one or two weeks to three months. The average interval is from one to two months. The disease is said sometimes to have appeared in five or six days, and a case was mentioned some time ago in which the affection appeared to come on the next day. In other cases the disease has not appeared for nine or twelve months. There is a case mentioned in the Philosophical Transactions where the affection did not come on for nineteen months. Dr. BARDSLEY has given an account of a case where the disease did not occur till twelve years after the bite. The case has given rise to a great deal of doubt. We are told that it was a genuine case; but there is great difficulty on both sides. If we suppose it to have been owing to the bite of a rabid animal, and the wound had been inflicted twelve years before, there is a great difficulty in supposing that the poison had existed so long; and again, if it were not owing to this bite, it must have sprung up *de novo*. Dr. PARRY thinks the case was not genuine, and he also considers that the shortest well-authenticated interval is two or three days, but I think he is wrong; for I have reason to believe that it has occurred at a shorter interval. I also think that Dr. PARRY is wrong on another point; for he states that he can find but thirty-eight well-authenticated cases of hydrophobia on record. I have seen six or eight cases in London, and at the same time that I have seen these, there have been others which I did not see. Two of these cases occurred in private practice, and four or five in the hospital, and having seen these myself, I must think the disease is far more frequent than Dr. PARRY supposed. The interval, however, is various. It is said to be about the same in the dog as in the human subject. Among Lord Fitzwilliam's hounds, in Yorkshire, the interval varied from six weeks to six months. Persons usually escape, if the poison be not inserted into a wound. Cælius Aurelianus mentions the case of a woman who was seized with the disease three days after having eaten some game which had been sent to her, and which was supposed to contain hydrophobic poison, in consequence of having been killed by a mad dog. If the case was true, there was probably a crack in her lips. Dr. BARDSLEY mentions a case which occurred at the common interval in a shepherd, who had only been licked by a dog. His dog was rabid; but then shepherds continually have cracks in their hands. Many cases have occurred of persons being bitten by dogs and becoming mad, the dog not being supposed to have been mad till afterward. The disease must have existed at the time, or the dog could not have communicated it, that is, speaking logically; but it exhibited no signs of madness, so as to be considered in that state. It has been imagined that all bites of animals have something venomous in them; and we are told that many bites of brutes have caused signs of hydrophobia, epilepsy, and even death; but in all probability these were nervous symptoms, induced by fear.

On the other hand, most persons bitten by rabid animals do not suffer hydrophobia. J. HUNTER mentions that twenty-one persons were bitten by a dog, among whom only one became affected with

the disease; and yet not one of them took any steps to prevent it. Dr. VAUGHAN mentions that between twenty and thirty persons were bitten by a mad dog; some did nothing, others took the Ormskirk medicine, and had a dip in the sea, and yet of this number only one had the disease. Dr. PARRY states that several sheep and dogs were bitten, and that among these not one sheep had the disease, and only two dogs, one of these dogs was bitten before the sheep, and the other just afterwards. I had a case of this disease in a little girl who was standing at her father's door, when a dog snapped at her face, and did the same at another sister, and then passed on. At the expiration of six weeks or two months, the sister who was bitten second had hydrophobia, and died, but the other sister never had the disease, or the premonitory symptoms went off, and she may be alive now.

By far the most frequently, persons who have hydrophobia, through a bite have had the wound inflicted on the hands or face. In three cases that I had under my care in private practice, one patient was bitten on the face and two on the hands. If the part be not bare, the tooth is wiped as it passes through the clothes, and therefore no fluid is conveyed with the bite. It is a bite on a bare surface that is generally productive of the disease. Some persons have so little disposition to the affection, that notwithstanding they are bitten on bare parts, and no precaution is taken, they do not suffer the disease, and sometimes persons will not experience it till they are thrown out of health, till they are frightened, catch cold, or something happens to disturb the constitution, and then it appears. This is precisely what happens in the plague, in ague, and in other affections. The wound is generally healed when the disease appears, and it is sometimes entirely forgotten. Some say that if there be a wound it becomes livid when the disease appears, or it looks yellowish, and sometimes it reopens. Sometimes, when it appears, there is pain and numbness in the bitten part, extending along the course of the nerves. This was the case in an instance I had under my care sometime since. The boy had been bitten in the hand, and the part had been cut out entirely; but pain was felt along the nerves, and extended to the neck, at the time that the disease begun. It was curious that there was no pain in the wound, no pain in the hand, no pain in the upper arm, but it extended inwards along the nerve to the neck. More frequently than not it is along the course of the nerves, and not along the course of the blood-vessels that pain is felt.

The wolf, the fox, and the dog, are all of the canine species, and they are well known to give and receive the disease, and they appear to originate it likewise; that is, there is every reason to believe it will originate in them. Unless it can exist in a dormant state for a long time, there is every probability that hydrophobia is produced *de novo*.

The cause of it, if it *can* arise *de novo*, is not well known. It is not putrid meat, for the Caffres in Africa feed all their dogs on putrid flesh, neither is it salt meat, neither is it a want of drink. The disease is unknown in Syria and the interior of the Cape of Good Hope according to Dr. PARRY, where there is plenty of heat, and in some

instances plenty of putrid meat. It is said it is never known in South America, but then two thirds of the pups there die of the *distemper*, and some persons contend that the distemper prevents the spontaneous occurrence of hydrophobia.

Dr. JENNER, in the first vol. of the *Medico-Chirurgical Transactions*, lays down the diagnosis between hydrophobia and the distemper. He says, that in the latter the eye is dull, the dog looks stupid, and has an insatiable desire for water. The distemper is a violent kind of catarrh, and we may therefore imagine that the eye will look heavy, and he will become thirsty. The dog wanders from home, and at length he is disposed to be sluggish. But in hydrophobia, the eye of the dog is bright, that he looks furious, and generally declines water. When a hydrophobic dog bites, it sneaks off directly, and is not found again or if found, it is dead; it goes away from the place, and is frequently afterwards found dead.

A German physician, Dr. HERTWICK, states that the voice of the dog in hydrophobia is peculiar and pathognomonic. That the bark of a dog labouring under the disease ends in a howl, and the mouth at the time of barking is lifted up. He says that he has inoculated fifty-nine dogs with diseased secretion from hydrophobic dogs, and fourteen only took the disease. That he made experiments with the blood and found it equally poisonous with the secretion of the mouth. He says the saliva will act in producing the disease at all periods of the affection, and twenty-four hours after death if it be taken from the body, it will still give rise to it; but if the poison be swallowed it is perfectly inert. The poison of serpents may be swallowed without doing injury.

TREATMENT.

It is certainly our duty to cut out the part as soon as possible, and perhaps at any time between the bite and the appearance of the disease; and if the part cannot be cut out, I should think it proper to remove the whole limb. I am not sure that this prevents the disease, because I know there are many cases in which this has been done, and yet the disease has occurred. A perfectly authenticated case was mentioned to me lately in which not a moment was lost, but the person the instant he was bitten walked across the way to a surgeon, and had the part freely cut out, but notwithstanding this, at the usual time he had the disease.

CELSEUS recommended cupping-glasses, and Dr. PARRY also: still more recently it has been recommended by Dr. BARRY, who says that its use has been shown by experiments with various mineral and vegetable poisons. If these poisons be applied to a wound, and the poisonous effects begin, and the cupping-glasses be applied; in proportion as they act the influence of the poison disappears. It is therefore recommended to us to immediately apply cupping-glasses to the wound, and excite the part thoroughly, so as to draw out, if possible, every particle of the diseased fluid. The stream of course will be towards the glass, and as it will be washed away, the circula-

tion and absorption will be prevented at the moment. Then you may cut the part out, and cup again.

Caustics are by no means to be depended upon; but if they be used they should be very strong, such as caustic potash, or strong mineral acids, or, what perhaps is better than all, the actual cautery should be employed. I do not know that excision is to be depended upon; but, after excision, in order to make what is considered certain, doubly certain, caustic might be employed, or the actual cautery. Chlorides may destroy the poison; but, supposing they will, yet one cannot be sure that every particle of the poison has been in contact with a part of the solution of the chlorides: we are not sure that every particle has been decomposed; and therefore if the chlorides be applied, still I should cut the part out in the first instance, and apply them afterwards. The use of these other things, in addition to excision, may be very great. If the part be one that cannot be cut out—if the wound be so deep that it is impossible to cut it freely out, and the removal of the part by amputation be not possible—then use the actual cautery, or caustics. When the part is cut out, we are advised not to allow it to heal, but to keep it open, so as to produce a discharge for a length of time. However, I know of plenty of cases where this has been done, and yet the disease appeared, though one would fancy that it was better than mere excision; so that, after we have cut out the part, we might apply caustic, or the actual cautery, and then keep up a discharge. In the way of prevention we are strongly recommended to give mercury to ptyalism. You will find a great number of cases where the disease never appeared after this was had recourse to; and among these cases you will find it stated that, in some instances in which mercury had not been employed, the disease appeared; but there are cases enough on record of the disease occurring after mercury had been exhibited to the greatest extent. Not knowing what to do in the way of prevention, in the case of the sister of the little girl who died of hydrophobia, two months having elapsed since the bite, I exhibited mercury freely. I was not content with its exhibition by the mouth, but a strong solution of oxymuriate of mercury was made, with which she was washed till a rash was brought out, and then it was discontinued, lest inflammation should come on. In this way her mouth was got tender, and she had nothing more than the premonitory symptoms. Whether the mercury had any effect I do not know; but I should think not, because I believe the symptoms went off before the mouth was affected. I should think there is no reliance to be placed on mercury. Dr. GOOD thinks that the belladonna, united with the oxmuriate of mercury in a large quantity, has acted as a prophylactic in his hands.

Dr. SPALDING tells us that the exhibition of *scutellaria laterifolia* is successful; that it prevented the disease in thousands of cases of men, dogs, oxen, and swine. The Ormskirk medicine was once held in very high estimation: it is said to consist of powder of chalk, Armenian bole, alum, powder of elecampane root, and oil of anise. In London, sea-dipping was thought very good. Any thing may do

good which will fortify the mind, and the disease may by that means be more or less opposed. Dr. MAROCHETTI published a pamphlet a few years ago in which he asserts that if the disease will appear, pustules form under the tongue after the bite: and if these pustules be abraded by a needle, and the mouth be washed with a decoction of *genista tinctoria*, or butcher's broom, and it be taken internally, the disease is prevented. Others have, subsequently to the appearance of this publication, made a point of attending to this circumstance, but they have found no pustules even in cases where the disease came on, and though the *genista tinctoria* was fairly tried, the disease nevertheless made its appearance. Venesection has been fairly tried by Dr. RUTHERFORD, many years ago, and also by Dr. PARRY. I employed it in one case without any effect. As the blood flowed, the pulse became weaker, the disease much more intense, and the patient died in a very short time. In the *Medical Gazette* of December 1828, you will find a case mentioned by Mr. GODERICH, and to which I have before alluded, where the patient was an old man, and was bled to the amount of 150 or 160 ounces. No relief was afforded, but he became worse and worse, and died in twenty-seven hours from the period of the attack. MAGENDIE and DUPUYTREN have employed venesection, and failed. M. BRESCHET also says, that the more he bled his patients the more quickly they seemed to die.

Dr. SATERLEY said that an emetic proved useful: all things, however, have been found useful in hands of some. All narcotics, opium, belladonna, nux vomica, and prussic acid have failed. Opium injected into the veins has seemed to give no sort of relief; and musk also has been given without any real benefit. I was told of a case where prussic acid was given to a very considerable amount, and yet no benefit whatever arose from it. The chlorides and muriatic acid have also failed. I made a fair trial the other day of a vegetable matter—guaco—which was said to a certainty to cure the disease;—there could be no doubt of it whatever; and Dr. ROOTS also made a fair trial with it, and the patient was better. Now and then, however, there are irregularities in the course of the disease, and whether the improvement was ascribable to the medicine or not, I cannot tell; but I should think not, for the patient died at the usual time. Some have recommended a whirling machine. VAN HELMONT used to recommend putting the patient under water, and keeping him there till he was nearly drowned; but I believe nothing will do good when the disease is formed.

LECTURE L.

DISEASES OF THE HEAD AND NERVOUS SYSTEM.—NEURALGIA.

THE disease of which I shall now speak I have selected because it is characterized by morbid sensibility. It is called

TIC DOULOUREUX OR NEURALGIA.

It is said to be called *tic douloureux*, which is a very odd word,

from the pain resembling the sudden sharp pain arising from the bite of an insect, or from the horse biting the manger when he is supposed to be labouring under it. The word neuralgia is very appropriate, but the word *tic* is one that I do not approve. The disease is marked by a violent, stabbing, plunging pain, which is increased, or even brought on, when it does not exist, by the slightest touch of the skin. When it is present, it is increased by the least touch; but very firm pressure I know will relieve it. It is increased, too, when present, by blowing on the skin, or by the shaking of the room, and is then exactly like an electric shock. There is generally no swelling, no redness; there may be, but it is not essential to the complaint. Tic douloureux generally takes place in the course of some well-known nerve, and hence the disease is now more appropriately called *neuralgia*—nerve ache. Sometimes the pain does not follow the course of a nerve, but still we must consider it according to general rules. Sometimes it is not an aching of a nerve, but the whole of a part is affected together, so that the disease will exist in the breast, in the heart, or the pericardium, and once I saw it in the loins, not following the course apparently of any nerve, but affecting various nerves in the mass. If the nerve affected have small muscles in the neighbourhood, they are generally twitched; so that, when the patient has the disease in the face, you see the side of the face catching every moment. If the disease be dreadfully severe, as sometimes it is, then you have convulsions of the large muscles. When it is a distinct nerve that is affected, it is more frequently than not the supra orbital, the infra orbital, or pes anserina, and next to these the inferior maxillary. When it is situated in these parts you will have a twitching, because the muscles of the face are so small; and from the disease occurring in the neighbourhood of glands, you commonly have in these cases a great flow of tears or of saliva. The disease is sometimes seen in the fingers, sometimes in the thumbs, in the feet and in the tongue. I had a case where it clearly occurred in the peroneal nerve, and another where it clearly occurred in the tibial. The disease comes on in paroxysms, and the pain is so dreadful, so that occasionally it brings on delirium. After a time it will in some instances cease spontaneously without our knowing why, and in other cases it will produce great emaciation and end in insanity, or some other disease of the nervous system. This disease is said to have been well described first of all in 1756 by ANDREY, who wrote on diseases of the urethra. Dr. FOTHERGILL wrote upon it in the fifth vol. of the Medical Observations and Enquiries, published in 1776. It is a disease which I suppose has always existed, but, like true hydrophobia, it has not been well described in modern times. Sir CHARLES BELL and M. MAGENDIE both say that they have examined neuralgic nerves and found nothing; but, by the long continuance of the pain, the neurilema, the covering of the nerve, becomes thicker, and the irritation has occasionally produced a tumor during life. From the great thickening of the surrounding parts, the veins around the nerves have sometimes been found varicose. ANDRAL, the most recent writer on this subject, says that in acute and chronic

sciatica, which is a kind of neuralgia, he never but once found any alteration of the nerve, and that in that one case the nerve was merely a little redder than usual, it having been injected. He says that in a woman who had constant pain at the back of the neck, on the left side he found nothing either in the trunks or branches of the brachial plexus. In the nerves in a case where rheumatic pain existed at the moment of death, he found nothing.

Neuralgia certainly arises in many cases from cold, and in some it certainly arises from a mechanical irritation of the nerve, such as is occasioned by the stumps of old teeth or an exostosis. Many cases have occurred in which the bones of the cranium have been found in a state of exostosis or carious, when the disease appeared; but this is not at all necessary. The disease frequently occurs when you cannot explain it at all, and after death nothing has been found. Dr. MACCULLOCH thinks that it arises from malaria. I have no doubt but that he is quite right in a great deal of what he says, but still he ascribes too much to malaria. He considers that almost all tooth-ache arises from that source; but errors have been committed on the other hand, and teeth have been pulled out where the pain did not arise from the teeth. I have seen cases where a person has lost almost every tooth, and has then been cured by quinine. However, it is possible that the nerve or the neurilema, one or both of them, may be inflamed; and, if that be the case, you must expect violent pain. Neuralgia, which exists in a certain well-known nerve, or is attended by heat, or any sign of inflammation, is generally called *tic douloureux*, and I believe that term was applied by old writers to the pain running in the course of a particular nerve. But there is a kind of neuralgia which is decidedly a rheumatic pain in the nerves, which arises clearly from cold, and is nothing more than rheumatism affecting the nerves. Rheumatism for the most part affects the fibrous membranes, ligaments, aponeuroses, and sometimes muscles; but now and then it affects nerves, and then of course the nerves will ache. There is a kind of rheumatism which affects the nerves; therefore there is a kind of neuralgia which is rheumatic, and you find this sometimes inflammatory and sometimes not, just as is the case with rheumatism. In such a case as this the disease arises from cold, and in the first instance there is a great deal of heat, pain, and tenderness—not producing an electric shock, but tenderness of the part, and you generally find at the same time rheumatism in some other parts. There is frequently periodical rheumatism in the nerves, and it comes on in the evening; about six o'clock the patient has a regular paroxysm. You find in it all the characters of rheumatism, with this only difference, it affects well-known nerves. Besides the aggravation of the pain at intervals in these cases, there is generally a constant dead pain. This kind of neuralgia is for the most part very easily cured; the remedies for rheumatism in other parts are equally successful in the cure of this. Rheumatic neuralgia affecting particularly the sciatic nerve, or all the nerves on one side of the head, the supra orbital, the infra orbital, the mastoid muscle, and the scalp, is continually seen; but the old neuralgia, described as *tic*

douloureux, is a very obstinate disease, and is far less frequently cured than not. It affects particular nerves, and is seen chiefly in the face. True chronic neuralgia, not arising from cold, and coming on in a violent, stabbing, plunging form, aggravated by the least shake of the patient and by touching the surface, is certainly best treated by the subcarbonate of iron.

TREATMENT.

Sulphate of quinine is an excellent remedy and so is arsenic, but upon the whole subcarbonate of iron is the best: whether sulphate of iron will cure it I do not know. For our knowledge of the power of this remedy over the disease we are indebted to Mr. HUTCHINSON. He tried various medicines, and this among the rest, and it succeeded. It is a remedy, but not a specific. I do not recollect that I ever cured the disease, but I have in almost every case made the disease better, and caused it to disappear for a time, but it has after a while re-appeared. You should not think you have failed till you have given a sufficient dose; if you have not succeeded with small doses, you should not give up the remedy till you have exhibited large ones. The disease is by no means common: I am sure I have not seen a dozen cases of it. I see cases of common neuralgia every day. Iron is an excellent remedy, and it is a great thing to make the disease disappear, and it is no great trouble in the patient to take the remedy again. But if you consider that it sometimes arises from a diseased bone, or an exostosis, or some mechanical irritation of a nerve, and that it may arise from a change of structure, you must see that there is no specific for it. The mere pain may be relieved by iron, but the disease is of such a nature that iron cannot remove it, and therefore the disease may be said inevitably to turn. The sulphate of quinine has appeared to cure the affection, but this has chiefly been when there was a distinct intermission, when the disease was periodical, and perhaps in cases where it arose from malaria. Belladonna, both internally and in a plaster, will relieve the pain, and some persons have said that they have seen it cured by it. Stramonium and opium have a similar effect; but in general you may give these things till you induce vertigo and apoplexy, and yet the pain will be no better. Belladonna, and perhaps stramonium, are better than opium, and they appear to have done occasional good. Arsenic is also beneficial. If all these means fail, the nerve may be divided; but if it be divided, of course a part should be cut out, that the ends may not find each other—may not unite together: but even that is a very uncertain remedy. Complete division of the nerve and excision of the part have been practised over and over again without any beneficial effect. In some cases the nerve has united, and in other cases the two separated parts have been as painful after the operation as before. You will find a case mentioned by Mr. WARDROP in the eighth vol. of the Medico-Chirurgical Transactions, in which amputation also proved successful. But where amputation has been resorted to, the disease has re-appeared in other parts. If there be an obvious exciting cause, it should be removed. If old rotten stumps

be producing it in the gums, it would be right to take them away; but when we consider how large a number of people have this cause of irritation without any such disease being produced, one is more inclined to trust to the general remedies than even the removal of the stumps: for I know that after they have once excited the disease, or have existed with it, the disease will continue after they are removed; and though it would be but common sense to get rid of an obvious cause, yet I know that the sulphate of quinine will cure many cases notwithstanding the old stumps are allowed to remain. It is said that, for the purpose of alleviating the pain, the steam of water, conveyed over the affected part by means of a tube, soothes it very considerably. Mr. PEARSON, a surgeon, formerly residing in Golden Square, states, that in painful affections of the nerves of the arm, he produced great benefit by employing strong stimulants;—stimulants made with strong acids, so as to produce extreme irritation. It is the other form of neuralgia—rheumatic neuralgia—which is for the most part so easily cured, and the cure of which has been published over and over again in hundreds of cases. Some give the general name neuralgia to this particular form of the disease and others, conceiving the word neuralgia is applied to *tic douloureux*, are astonished to find that some practitioners have had scores of cases, and that nearly the whole are cured. I believe the truth is, there are two different forms of the disease; the one more or less permanent, not dependent on rheumatism, and the other connected with it,—the one obstinate, the other very curable.

TREATMENT OF RHEUMATIC NEURALGIA.

In rheumatic neuralgia if there be any heat—if it appear like active rheumatism—if heat make it worse—then you find blood-letting, general and local, colchicum, the exhibition of mercury, and even an application of it to the parts, does great good. If, on the other hand, it be of a passive, torpid kind, you find stimulants of great use, and you will find narcotics, stramonium, and belladonna, answer here a good purpose. I have cured many cases by stramonium. Arsenic here is of great use, and so likewise is quinine and iron. It is in this form of the disease that you may do so much good. Stimulating liniments here, too, are very serviceable. When the disease assumes a periodical form, it is most likely that quinine or arsenic will cure the disease much better than iron. If it assume the character of acute rheumatism, you must apply the remedies for that complaint; but if not, by the exhibition of various stimulants internally, and their application externally, with treatment of that description, you will cure many cases. Acupuncturation, is also very serviceable in this kind of neuralgia, but in the other form it is of very little use.

The first disease of which I will speak consists in a very slight tremulous motion, and is called

PARALYSIS AGITANS, OR SHAKING PALSY.

It is defined to be an involuntary, chronic, tremulous motion of

more or less of those parts of the body which are subject to volition, together with lessened muscular power, occurring in parts when they are not in action, and even when supported, together with a propensity to bend the trunk forwards, and to pass from a walking to a running pace, the senses and the intellect being injured.

The muscular weakness and tremors begin generally in some one part of the body only, for instance on the head; but most frequently they begin in the hand or in the arm, and perhaps it is not till after some months, or even some years, that another part is affected. But the disease frequently increases both in degree and in extent; more parts become affected, and parts affected before become more affected, till at last the whole body shakes. Like St. Vitus's dance, it may be checked for a moment, or for a few moments, or even to the extent of a minute by a violent strong voluntary effort, but it soon returns. The patient becomes less upright, bends forward, walks upon his toes, and steps quick and short, till at last he comes almost to a running pace.

If the disease remit in one part it generally increases in another, so that if both arms tremble, and you see one improved, the other will immediately do double work. This is also the case in St. Vitus's dance. A change of posture will sometimes disturb the action that is going on. This tremulous motion ceases during sleep, the same as in St. Vitus's dance, unless the case be very severe, and has continued for a long time; then the tremors will continue even during sleep. At length the muscles of articulation, mastication, and deglutition, become affected; and, finally, the urine and fæces are discharged involuntarily. Such is the loss of muscular power; and in the midst of all this misery the patient becomes emaciated, and death occurs.

Many persons have shaking palsy of the head for several years, without any other part shaking, and without the head shaking more and more. You will see many elderly persons who have been so affected. This is a disease which frequently attacks person in the decline of life. Mr. PARKINSON, mentions a case in which hemiplegia occurred, and the paralysed parts ceased to shake; but when the hemiplegia ceased, then the shaking returned again.

Sometimes you have to make a diagnosis between this disease and the tremor induced by drunkenness, or violent passion, or that which occurs in delirium tremens. The tremor in these cases occurs particularly when an effort is made, and it is not lessened by an effort; it is not lessened by support, and generally the cause is obvious.

Mr. PARKINSON gives only one post mortem examination, and that was a very severe case, where the disease was universal; where there was great muscular debility, impediment of speech, and, at last, impairment of intellect. He found in that case the lingual and brachial nerves tendinous, that is to say, greatly indurated; the medulla oblongata and pons varolii were very compact and large; the medulla cervicalis, the cervical part of the spinal marrow, was also hardened. I have no doubt the obstinacy of this disease arises generally from there being an organic affection. Mr. PARKINSON ima-

gines the disease to exist in the superior part of the cervical medulla spinalis, extending upwards to the medulla oblongata, and he suggests antiphlogistic measures, directed particularly to this part.

I believe, as it occurs in old people, where one hand shakes, or the head, you can do no good, at least I have never known good done; and where it has occurred pretty universally.

TREATMENT.

I have never been able to cure but one case, and in that instance the patient was not old—he was not above five-and-thirty years of age, and I am satisfied there was no organic disease; whereas in old persons, I should think, there is organic disease, probably induration, or at least a process going on which leads to it. This man, who was in the middle period of life, was not subject to structural change, unless it were induced by inflammation. There was pain of the head, heat of the head, and giddiness, and, therefore, I treated him antiphlogistically. I bled him well, blistered, mercurialised, and starved him, and he had setons introduced, but without any benefit. Finding after a long trial, that the plan did no good, I gave him zinc, which is a very useful remedy in St. Vitus's dance, and he took a considerable quantity three times a day, but without any benefit; and I then exhibited subcarbonate of iron, under the employment of which he became perfectly well, and remained so for some time afterwards. I have since had four or five cases of the disease under my care, and have exhibited the same medicine, but it has not produced the least benefit. You will see the disease occurring in a transient slight form in young persons, not connected with any organic affection, but appearing to be in females an hysterical affection, and in males to depend on congestion of the head. I have seen several young adults who have had a shaking of one arm or hand, which has been cured by purging them continually, and using antiphlogistic remedies directed particularly to the head. You may cure that form of the disease very well.

The next disease of which I shall speak is very much allied to paralysis agitans, so far as it consists of irregular, slight, convulsive motions, and is unattended by any serious disturbance of the intellect, unless it continues for a very great length of time; but it is one which occurs, on the contrary, in young persons. It is called

CHOREA, OR, ST. VITUS'S DANCE.

It has received that name, I believe, from there being a chapel dedicated to St. Vitus, where persons went and danced when they had this disease, or something like it, till they dropped down exhausted, and so, it is said, became cured. I need not say that the Latin word *chorca* comes from the Greek word *χορμα*. There is the best authority for calling it *chorëa*, and not *chorëa*. You find Virgil using the word; but it is only a poetical license, and the proper one is *chorea*.

This disease is characterised by a catching of the fingers, and other joints, a twitching of the head, corrugations and contortions of the face, very extensive flexions, extensions, and rotations of the extremities—in short, perpetual motion—with a rolling of the eyes. The

patient is observed, therefore, in the first instance, to drag one foot ; and frequently, there are such catches of the tongue, and muscles of the neck and throat, that articulation, deglutition, and mastication, are *difficult* ; and so likewise is walking, standing, sitting, or lying. I have seen the skin of the chin and breast rubbed off by the perpetual scraping of the one on the other. I have sometimes seen the patient unable to lie on the bed, so that it was necessary to strap him down. These, however, were very severe cases. As to feeding patients, that is often very difficult ; and it will sometimes require the aid of two or three people to give them their meals—two to hold them still, and one to catch the favourable opportunity of putting the spoon in their mouths. You will find the motion increased temporarily by fear, or any gentle motion. Nothing is more common than for the motion to increase when a medical man appears. Any mental agitation will have the same effect. If a child be made cross, the motions will double almost directly. These motions are a little under the power of the will ; persons can restrain them temporarily. You will find that persons walk quickly better than slow. Dr. HEBERDEN mentions the case of one individual who could not walk, though he could run. Exactly as in paralysis agitans, the movements are suspended during sleep, unless in extreme cases. If you hold one part, then another is agitated the more ; and generally one side is more affected than the other. You find this very common in all convulsive diseases ; and, indeed, in diseases of sense as well as of motion. In many of these diseases, it is common to see only one side affected ; but where both are attacked, it is usual to see one more affected than the other. This circumstance occurs in St. Vitus's dance ; and the side most affected will, in the progress of the diseases, frequently change, so that the right at one time shall be most affected, and at another the left.

The first symptom usually observed, is that of one foot being dragged after the patient. The arms are generally more affected than the legs. The face has very frequently a fatuitous appearance ; the mind is apparently a little affected, and persons are a little childish. The pulse is sometimes very quick, when the motions are very rapid ; and sometimes you will observe headache, heat of the head, vertigo, drowsiness. Sometimes patients will scream, and even epilepsy will come on ; and sometimes there is hardness of the abdomen : but in a large number of cases you will find no one symptom present—you find nothing the matter with the patient except this extraordinary movement. It is a disease that may last some weeks, or some months, and then go off by art, or spontaneously. It now and then continues during life ; but the majority of patients recover, and recover even their looks. In a local form, this disease will continue for life. You will observe many persons who always have a catching of one leg or one arm, or a catching of some of the muscles of the face. Some are always winking ; some have an extraordinary motion, they run their head upon you like a goat ; and some throw their head down. When it is so local, it almost always continues for life ; and you will see it run in families. When the disease occurs in adults I believe it

is seldom cured, at least I have seldom seen it cease. It is where it occurs universally, and in very young adults, that it is cured. It is hardly a proper mode of speaking to say that the disease may terminate fatally; but that state of the nervous system which produces it may end in death. I recollect a case in a girl about nineteen which ended fatally. She did not die of St. Vitus's dance, but of apoplexy. The congestion of the head which in one degree produces chorea, in another gave rise to apoplexy, and pathologically it could not be said she died *of* the disease, but *in* the disease. I have no doubt it might have been prevented, had she been well bled and purged. Dr. HEBERDEN says it is most frequent between the ages of ten and fourteen; but my experience leads me to say from three or four years to fourteen.

Dr. HEBERDEN says that one fourth only of the patients under his care were males, and that has been about the proportion I have met with; at least in 1826 I looked over my cases of this disease, and found that in the hospital altogether I had had seventeen patients, twelve of whom were girls, three boys, and the rest adults. At the same time I looked over my cases of epilepsy, and found they were just the reverse—that out of twenty-five cases of epilepsy, nineteen of the patients were males, Dr. HEBERDEN made the same observation. I found in 1829 that I had had altogether thirty patients labouring under St. Vitus's dance, twenty-two of whom were females, and eight males—about the same proportion as in 1826. With respect to epilepsy in 1829, out of thirty-seven patients twenty-seven were males.

I do not know that this disease is hereditary, because adults frequently cannot tell whether they had St. Vitus's dance when they were young or not; but it is very common to see two or three children in a family have it, not at the same time, but at different periods. You will observe that it affects all sorts of children, those who are pale and sickly and those who are ruddy. It affects those frequently who are otherwise in perfect health, and generally there is no obvious cause; generally one sees no cause of predisposition, and generally one can discover no cause that excited it. All I can make of it is that it is a morbid excitability of a certain portion of the centre of the nervous system, the medulla oblongata or spinal marrow, with which the nerves of voluntary motion are connected; but not a sufficient irritation to produce that violent action which characterizes tetanus. As to its being inflammatory, almost every case may be cured, not by antiphlogistic measures at all, but those which are just the reverse. It has been said to arise from an irritation of the alimentary canal: but I am quite sure that in nine cases out of ten, I might almost say nineteen out of twenty, that is healthy. If the cure arose from purging, the *fæces* would be unhealthy. Now and then a distant existing cause may of course be found; but I have never been able to discover any, except in one instance, where it came on after a discharge from the thigh had been suppressed. A scrofulous sore had continued in the thigh for some time, and when this healed up St. Vitus's dance began. Whether it was accidental or not I cannot tell; but it was not cured by re-exciting the discharge, but by iron, and that with

the greatest rapidity. The proximate cause, is seated in the head, as well as the spinal marrow, and for this reason—the very highest nerves are affected. The eyes roll; the very highest muscle of the body, the corrugator supercilii, is affected; the countenance is fatuitous, and the mind is frequently a little impaired. Now and then it is unquestionably true that you have constipation, and now and then it is true that you have headache and throbbing; but these form only a very small proportion of the cases.

TREATMENT.

If you find drowsiness, headache, or heat of the head, you ought to purge the patient well, and take away blood either by the arm or by leeches—to treat it as a case of congestion, or an inflammatory state of the head. It is a much shorter mode to apply leeches to the head and take away blood from the arm than to go on with purging. Purging is good, but it is a roundabout way of affecting the head, and if there be much congestion of that organ, it is the best way to take blood from it directly. SYDENHAM's practice was to take away blood from the arm and purge. It was rather a violent practice in many cases, and I am quite sure that neither bleeding nor purging are required in a great number of instances; yet if bleeding and purging had been practised in the case where apoplexy supervened, there is a probability that the patient would have lost her St. Vitus's dance and not have become apoplectic. If there be costiveness, it is our duty to remove it; if there be pain of the abdomen on pressure, besides emptying the bowels we ought to try the common remedies of inflammation. There can be no doubt that purgatives will sometimes cure the disease, by relieving a loaded state of the alimentary canal, and in other cases by circuitously emptying the head. But purgatives very often fail; children are continually brought to one who have been well purged, and yet they are none the better for it. An inflammatory or congested state of the head is by no means more necessary to this disease than it is to hydrophobia or tetanus.

Why I think the disease is not essentially inflammatory, and that more frequently than otherwise it is a mere morbid irritability, is this, that tonics are the best remedies. Sulphate of zinc will cure a very large number of cases, and it may be given to a very considerable quantity. You may begin with a grain in the form of a pill, but you must not exhibit it on an empty stomach, but after meals, and in many cases you may increase it to six, seven, or eight grains. I have given from twenty to twenty-five grains to adults three or four times a day, without nausea. This is not a newly discovered fact; you will find it mentioned long ago that these doses may be given in epilepsy without nauseating. The circumstance is ascribed by Dr. GOOD to the insensibility of the stomach in epilepsy; but there is no reason for supposing that to be the cause, for it is now proved that persons in health, with no insensibility of stomach, will take it in these quantities, if you begin with a grain first and gradually increase every day. I cannot doubt the fact, because I have given it in this quantity, and seen others exhibit it over and over again. The sul-

phate, and other preparations of copper, will cure the disease, and so also will the nitrate of silver; but the latter is an objectionable remedy, on account of its producing a discolouration of the skin. The subcarbonate of iron has undoubtedly very great power over the disease: I have had I should suppose forty cases in succession all cured by this remedy. Perseverance is sometimes required; but I never had a case occurring in a child where it was fully given that the patient was not cured, though I have never cured a case in adults where the disease was quite local, situated in the head or arm. When cases occur in children, they generally become better, and the disease gradually ceases. I have not yet met with a single failure. In general the affection disappears when the remedy has been given about six weeks or two months; but I have had some obstinate cases where it was necessary to continue it twelve weeks. I believe that a large dose will sometimes cure it where a small one fails; but I should not give a large dose where a small one would do; but if that would not answer, rather than give it up I would double the quantity. Children generally like it, and after a time they ask for it, because I exhibit it in double its weight of treacle. Generally there is no necessity to give purgatives. I have seen headache, drowsiness, and giddiness disappear under this remedy—an occurrence which you would not *à priori* expect; but if there be much heaviness of the head, I should employ leeches instead of giving this remedy, at least at first. Some have an idea that if you purge the patient well first and then give the remedy, it answers better; but I have not seen that to be the case. The oil of turpentine has sometimes been used with success, and some say colchicum. Electricity along the spine, the cold bath, the shower bath, the hot bath, and cold in succession, and musk, will undoubtedly do good in the disease, and will now and then cure it; but I have tried most of them, and never found any thing so useful as the subcarbonate of iron. I never tried the sulphate of iron but once, and in that child the disease gave way. I may mention that the child was plethoric. It is right to continue the iron some time after the disease is cured; for if you do not, the disease is very likely to return. Sometimes persons have this disease in another form, so that they dance or leap, and then it is called

LEAPING AGUE.

Perhaps it is called *ague* from not being constant, but coming on in paroxysms. This form of the disease has been very frequent in the northern parts of Scotland, and also in Germany, and some other places. In this form of the affection persons will sometimes run with extraordinary facility over dangerous places. If they have a place fixed in their imagination they will dart forward towards it, and on arriving at it they will drop down exhausted. HORSTIUS states that certain women in Germany were affected with restlessness of body and disorder of mind, and went annually to the chapel of St. Vitus near Ulm, where they danced night and day till they dropped down exhausted, but were cured till the following May, when the affection returned, and they went through the same ceremony. The

French call it the dance of St. Guy. Sometimes the beat of a roll on the drum is said to give persons this tendency to dance, and that they are assuaged by music, just like fits of dancing in chorea. Some do not believe that the beating of the roll has much power, but that the effect results from the motions of the body arising from the excited state of the feelings, just like the other form of the disease which I have mentioned. In this disease some will climb in a very singular manner; others will have fits of rolling; others fits of leaping; others will whirl round; others will tumble regularly; and others will spring and dart forwards, in any direction, to any given spot. Paroxysms of this kind will sometimes come on daily, or even oftener, and sometimes not so often. Occasionally they have been observed to be periodical to the minute, and, as in common chorea, this affection is somewhat under the will. It is a strong desire for motion, and a pleasure in yielding to it; but a strong effort will produce a little diminution of the motion. You will find a curious case of this kind given by Dr. WATTS, of Glasgow, in the fifth vol. of the *Medico-Chirurgical Transactions*. In this patient, a woman, there were various movements at different times, and he states that he witnessed them himself. He says that she would roll over fifty or sixty times in a minute, and would be sometimes seized with tetanic rigidity, but that she was conscious of her own existence during these fits. In the seventh vol. of the same *Transactions* you will find a case mentioned by a very eminent surgeon, Mr. KINDERWOOD, and which likewise occurred in a female. She had violent fits of dancing, and it was observed by some one, that when dancing she struck the table and every thing that came in her way in regular time, and it was likewise observed that she danced in very good time. A drum was procured, and a man beat it to the time in which she danced, and she immediately turned towards it, and danced up to it; but when the drum was beat in a roll or out of time, instantly her dancing was stopped. It was not known that she had ever danced before; but she now danced in regular time and very gracefully, shewing an infinite variety of steps. This repeated interruption at last broke the chain. She was sensible during the paroxysm, and between the paroxysms she nursed her child and attended to her household affairs, and had a great wish for her recovery. All the account she could give of it was, that she had a tune in her mind which compelled her irresistibly to dance. Occasionally there are these motions without any musical ideas whatever, and occasionally patients have involuntary musical ideas, causing them to hum a tune without any motion taking place.

A case of this description occurred in Renfrewshire in Scotland, in 1696, and the ministers watched the patient in turn. A commission was appointed by government to examine into the business, and was signed by eleven privy councillors, and it was declared that she was bewitched. A warrant was granted and several persons were apprehended and afterwards brought to trial for having bewitched her. After six hours deliberation of the jury, three men and four women were found guilty and condemned to be burned for having caused the

disease, and the sentence was actually executed at Paisley, on the 10th of June, 1697. You will find a case like this in the *Edinburgh Medical Journal* for 1829.

There is an account in the *Ephemerides* of a girl who sprang up horizontally and came down again. The mother consulted a medical man, and he told her he could do nothing for her; he attributed it to the devil, and directed her to a clergyman. *VOLTAIRE* says, that the greatest enemies the devil has are the doctors; that it is the doctors who do away with one-half of his dominion—so much was formerly ascribed to him and to those connected with him. We have some clue to these motions in the experiments of *MAGENDIE*. He says that if the white matter of both corpora striata be cut, the animal darts forward, or if this be prevented, it still retains a progressive attitude. That if the crura cerebelli or the pons varolii be cut from before backwards, an animal rolls over sixty times in a minute. That I have witnessed. He likewise states that if you cut vertically from the crura cerebelli through the arch of the fourth ventricle, it has the same effect, and the motion is more rapid, as the section is nearer that point. He says that an animal continued rolling after it was cut. If incisions have this effect, one may easily conceive that a certain local affection may have a similar effect in being the cause of this disease. In some persons there has been seen a mere propensity to rush forward or backward. Some of these affections are clearly the result of mere excitement of mind, some violent passion; sometimes they arise from witnessing other people under the disease; but occasionally they do appear to arise from certain causes within the nervous system itself, independent of all external circumstances. When, however, they arise merely from external circumstances, you see a large number of cases together, and in Germany they have been epidemic.

TREATMENT.

When these cases are sporadic, treat them like *St. Vitus's dance*, and I have no doubt that they would be cured in the same way. When they are epidemic, have recourse to mental measures—separate them, and do not allow one to be excited by seeing another. Strong corporeal measures can be of little use—medicine must be out of the question; but when these cases do occur without any external excitement, from simple irritation, although I never had such a case, I have no doubt that the cold bath, oil of turpentine, and those things which cure common *St. Vitus's dance*, will also cure this disease.

LECTURE LI.

DISEASES OF THE HEAD AND NERVOUS SYSTEM.—EPILEPSY.

THE diseases now to be considered are characterized also by an excess of motion; but, besides that, there is deficient sensibility in one respect—there is stupor. The present forms an intermediate link between those characterized by an excess of sensibility or motion, and

on the other hand those in which there is a deficiency of both. In epilepsy there are fits of a sudden loss of sense, with convulsions of the voluntary muscles; and the former, that is to say the loss of sense, continues after the convulsions have ceased, so that a person is said to go to sleep after the fit. The fact is, the convulsions cease before the loss of sense terminates. In the fit the countenance is ghastly and pale, or perhaps of a bluish red; it is sometimes sallow. You observe that the lips are livid, the neck and the cheeks are much swollen;—and perhaps the whole body, but especially the head and cheeks, are bedewed with sweat. There is foaming at the mouth, and generally the tongue is bitten. There are universal violent convulsions, horrid grimaces, a rolling of the eyes, and the pupils are dilated. Sometimes it happens that the urine and fæces are discharged involuntarily—the urine most frequently; and occasionally there is a discharge even of semen, with or without an erection. The hands are generally clenched, and if you observe the heart, you find it palpitating strongly. The pulse is quick, and respiration is short, deep, and irregular. When the patient wakes from the state of sopor, he has generally no recollection of what has passed, and perhaps, therefore, there is suffering. The want of recollection of suffering is no proof that there has been none; for we have all suffered enough in cutting our teeth, and we know nothing of it now. I should think there was no suffering, and for this reason—persons do not suffer in general when they are hung. There is an account in Lord Bacon's works of a person who was hung and all but killed, and yet he did not suffer. There is a short account by Cowper the poet from which it appears that he three times attempted to commit suicide, and one of these attempts was by suspension. He mentions that he suspended himself over his chamber door, and became perfectly insensible. He only recollected a flash of light appearing before his eyes. His weight at last caused him to drop on the floor; there he was found, and after a time he recovered. He says that, although he was thus in the jaws of death and had become perfectly insensible, yet he had no previous suffering. I should suppose that in drowning there is no suffering, if it occur once; if the individual go down and do not come up again; but if he come out of the water the suffering is great. Convulsions may last from a moment to fifteen minutes or more, and sometimes they recur after they have ceased, before the sopor is over. The sopor, or coma, is generally complete, both during and for some time subsequent to the convulsions, but not always. The character of epilepsy is a sudden attack of convulsions of the voluntary muscles, together with insensibility, the insensibility continuing after the convulsions have ceased. The name of the disease is given to it from the suddenness of the seizure—*παραλαμβάνω*, to seize upon. It is also called in Latin *morbus comitialis*, because if a person in the commission of the Romans was seized with the disease, it was considered a bad omen, and the commission was dissolved. It is also called *morbus sputa*, the spitting disease, from the custom of spitting into the bosom, to avert the unfavourable omen. In common language it is called *falling sickness*.

This disease occurs more on one side than on the other. I mentioned that paralysis continually does so.

The fits of the disease most frequently occur during sleep, or in the intermediate state of sleeping and waking, when we all experience a little delirium. If we fall asleep in a moment from a waking state, there is no delirium; but if we fall asleep gradually, the mind wanders, and if you wake suddenly there is nothing of the kind; but if you wake very slowly, then again a little delirium is experienced. We are, however, more accustomed to go to sleep gradually than to wake so, and therefore the delirium which you observe is far more common in going to sleep than in waking. Now it is at the instant when a person is neither in full action or at complete rest, that epilepsy particularly attacks him. You find a great number of persons have a fit just when they are going to sleep, or when they wake—many have it when they are asleep; and again, some only have it either when they are going to sleep or about to wake. I have seen many persons who are not at all aware that they have fits. These have been persons in the decline of life who are in the habit of sitting in the house, not going about so as to run the chance of being injured, and who have been watched by the rest of the family. The individuals have been seized in a moment, and have afterwards wondered what has been the matter. But some persons have good warning; some, previously to the attack, have vertigo and headache sufficient to shew that they are going to have it. Sometimes there is just vertigo enough, and no more, to enable them to escape from danger. Some have headache a day or two before the vertigo. Occasionally a spectre has been seen at the moment of the fit—Dr. GREGORY used to mention that he knew a patient who before the fit saw a little old woman come out of the corner with a stick, and when she approached and struck him, down he fell in a paroxysm. It is a mental delusion of the moment produced by an excitement of the brain.

There is a warning, occasioned by a sensation of tickling or crawling along the surface of the body. There is a sensation as if fluid were creeping from the fingers or thighs towards the trunk, and sometimes as though a spider or flea were creeping. When it appears like fluid, it is generally like *cold* fluid. This has been ascribed to a sort of rush of air or wind, and has been called *aura*, and being connected with the epilepsy is called *aura epileptica*. It does not follow the course of particular nerves; it appears to reside in the skin, and certainly there is no connexion whatever between it and the neurilema of the part. I have seen several instances of this affection.

Sometimes before the fit, the patient utters a loud scream. He is not aware of any suffering that occasions him to do it, but only says that he cannot help screaming. You sometimes find that the patient has a warning during the first fits; but when he has been long subject to the disease, no warning takes place. Sometimes after a fit not only will a patient forget it, but no symptom remains; and on the other hand, for some days people will occasionally be subject to headache and sleepiness. Sometimes these symptoms only remain a few hours, but in other cases they will remain a few days. You will

occasionally find the fits at first very numerous, but gradually they become less so; while, however, they become less numerous, they generally become more severe and last longer. I think, in the majority of cases, the fits are most frequent at first, so that a person will have a dozen or twenty in a day; but as they become fewer, I have generally observed them last longer, and the severity is greater. Occasionally I know the reverse takes place—they are not so numerous at first: some have but one fit for many years—an interval of many years will occur between the fits, and, so far as I know, some have but one fit during life.

If the disease have continued long and the fits have not been very infrequent, the mind generally becomes impaired; but if the disease have continued long, and yet the fits have not recurred except at long intervals, then the mind is not impaired. It does not necessarily follow that the mind should be impaired; but usually, if the disease last a long time, and the paroxysms are not very infrequent, you find impairment take place, and the reason is simply this, that the disease of the brain which gives rise to these fits at last disturbs other functions. It is not the epilepsy that causes it, but the cause of the epilepsy impresses other parts of the brain. It is very common for diseases of the nervous system to be united together, one, two, or more; and therefore you find, in illustration of this observation, that epilepsy frequently occurs in chorea, frequently occurs in hysteria, frequently occurs in insanity and with idiotism, and not unfrequently with palsy; that is to say, the pathological state of the brain or spinal marrow, or both, will produce sometimes one symptom, and sometimes another. The disease may be such as to extend from one portion to another, and affect various parts. This union of different diseases of the nervous system is seen almost always.

In St. Vitus's dance there is a peculiar constitution of mind, a little fatuity: apoplexy and palsy you see united every day, and apoplexy is the common termination of many diseases of the nervous system, of insanity for example. You may have these different nervous diseases co-exist or succeeding each other.

That disease which I have just described is the most common form; but there are great varieties. If you define epilepsy to be a complete loss of sense with general convulsions, then an incomplete loss of sense, or partial convulsions, is not to be considered epilepsy. It will sometimes happen that there is decided insensibility before the convulsions take place, and then during the convulsions a person is more or less sensible. This is one form in which the disease appears. You will occasionally see patients without convulsions at all; they will simply fall down in a state of insensibility, and rise up again without knowing what is the matter with them. Occasionally, instead of these convulsions occurring throughout the body, they are confined to one side, and sometimes they are still more partial than that—they are confined to one extremity. Sometimes, instead of convulsions, you have mere tremor of the body, or a part of the body will shake violently. Occasionally during the fit there is delirium. The person shews that he is not insensible; but instead of being in-

sensible, he is in a state of violent delirium, apparently in an alarming condition, although in general I believe there is no danger at all. Sometimes they have this delirium on recovering from a comatose state—they have coma, and after that delirium. Occasionally the disease assumes the form of partial tetanus, one-half the body will be in a state of the most intense spasmodic rigidity. I have seen two cases of this where the person was seized at the moment of the convulsions with a spasm of one-half of the body, attended with the most excruciating pain. One arm and one leg has been drawn up; yet there has been no danger in it, and the nature of the case has been shewn very plainly by the next paroxysm being epileptic. I have seen several instances where, before the fit, the patient became unconscious of external objects—that is to say, the comatose state came on before the convulsions; but in that apparently comatose state a state of sopor in which there was no perception of any thing around, the patient was internally in a state of activity, and that condition is called *ecstasis*, whether it be united with epilepsy or not.

In this state people sometimes walk, dress themselves, and even compose poetry, and yet they have no knowledge of it; and if they be awakened in this condition, they are alarmed, and quite ignorant of what has passed, or at least they are surprised at the situation in which they are placed. Sometimes they recollect it all. Sometimes the paroxysms are not quite complete, so that a person is half aware of what is going on about him. If they be in a situation where they have frequently been before, and have become habituated to it, they have been known to walk over difficult places where there is the greatest danger, but without incurring danger. These places, however, are well known to them, and habit has influenced their motions. Sometimes, however, the activity of the mind is so imperfect, that though they know where the window is, and how to open it, yet they forget that there is beyond the window the street, and they step out, and are dashed to pieces. This all arises from an imperfect activity of mind. Dr. DARWIN considered this somnambulism, or walking in the sleep, which is only an imperfect degree of sleep, to be an epileptic disease. Whether this is true epilepsy or not is another thing, but he considered it to belong to the family of epileptic affections. Dr. PRITCHARD considers walking in the sleep and *ecstasis* both of an epileptic character. If a person be asleep, and be seized with a partial consciousness, and partial voluntary power, it is called *somnambulism*; but if he be seized in a waking state, then it is called "*ecstasis*." It is the same state, only it may begin when you are asleep, by a degree of activity, or when you are awake, by a degree of insensibility. They come exactly to the same thing: they frequently occur without epilepsy, but they are frequently united with it. Even the night-mare is considered by some as allied to epilepsy.

In the night-mare, which is technically called *incubus*, there is a degree of sense, but a deceptive feeling; generally some unpleasant dreams, and more or less loss of volition. You cannot make the effort you wish; you have a strong desire to make a muscular effort, but you cannot. It is actually only a variety of somnambulism, and

when the paroxysm ceases, you can make a voluntary effort, and it is imagined you get rid of the night-mare by making the effort, whereas the effort is made because the diseased state ceases. I think it is a little degree of epileptic affection. There can be no doubt that it is cerebral affection, and it may arise from eating suppers, and other things. It is singular that there is one house in the country where I always have the night-mare. I repeatedly changed my bed-room, and at last I did not go to bed at all, but slept in the drawing-room : still, however, I had the night-mare.

This state of exstasis precedes the commencement of the fit ; and I believe it sometimes takes place after the fit ; but other varieties take place in the fit itself. I mentioned that sometimes the coma ceased as soon as the convulsions, and in some people you may have coma without convulsions at all, and that is a kind of epilepsy which is frequently mistaken for apoplexy.

Old people will fall down senseless, and will get up again just as if nothing had happened ; and if a practitioner be near, he bleeds them, thinking it is apoplexy, and a cure is thought to be effected ; but there is no reason to suppose there is any such thing. It appears to be only imperfect epilepsy, epilepsy without convulsions ; and for this reason, there is no stertorous breathing whatever, no harm arises from it, and such persons very frequently, sooner or later, have regular epilepsy. You will see this sometimes in a slight degree, so that persons will not lose themselves ; they feel that they are going ; they catch hold of something, and they are right again. It is no doubt an imperfect form of epilepsy, and the coma is not fully formed, lasting only a few moments. I have known this occur, and then the coma to last longer and be more perfect, till after some years the coma has been joined with convulsions ; so that I have no doubt elderly persons (and sometimes it happens to young ones) fall down senseless, and come to without suffering any consequences whatever, and have frequent attacks of it. Occasionally you will have mere faintness produced, but not enough to make the person take hold of any thing. The convulsions are sometimes very local ; sometimes it is only an arm or a leg that is convulsed. I had a case occurring in a boy, whose muscles at the back of his head were affected, and likewise the muscles of his eyes. During this state of partial convulsions, his head was drawn back and he was perfectly insensible, but he dropped down. He would heave a deep sigh, stir about, and be himself again. I have seen him repeatedly in a paroxysm of this description ; he would have thirty of them in a day, stand still all the time, and be perfectly unconscious of his fit. I had another patient, in whom the head was drawn down, and, when sitting at a table, down his head would come upon it, till his nose was beat flat. Before he had epilepsy, his mother said, he sat nodding, till his nose was almost as flat as the rest of his face.

I had an old lady under my care who had had hemiplegia of one side ; and this side became subject to epilepsy, and was convulsed from time to time to time. It is useful to know these things, because you might think that a patient, in these anomalous forms of epilepsy,

was suffering under some structural disease that might prove dangerous. If it be merely epilepsy, you may give a much more favourable prognosis, so far as life and death are concerned; though the prognosis in epilepsy is generally unfavourable, because you rarely can cure it. This is a disease which is very common in infants and young children, and it will sometimes continue till puberty, and then cease; but it will sometimes occur again after the sexual period of life is over. I had a patient (an old lady) who informed me that she had epilepsy when a child every few weeks; the fits gradually grew rarer till puberty. During the menstruating period they ceased, and she had no fit for thirty years; but when menstruation ceased, then she had a fit every year or two—sometimes not so often. She had pain in the occiput for five years before the disease returned, and one day she suddenly fell down dead.

Generally, when the disease lasts through life, it begins just before puberty, or about that time. It is generally imagined that puberty mitigates or destroys the disease altogether; but I believe that the hopes of parents on that point are usually false, and that puberty does not influence it. We see it more frequently in young people than in old: either so many young persons die of the disease, and do not grow old, or it ends in other nervous diseases—particularly insanity.

Old people are most subject to that form of epilepsy which is characterized by coma without convulsions, and which is often mistaken for apoplexy. Males are more subject to the disease than females, excepting when it occurs in young children and infants. In infants the proportion is just the same, because there is not the individual difference of constitution; but as the period of puberty arrives, and there is the distinction between the sexes, then you find it more common among males than females.

There is a certain hereditary predisposition to this, shewn perhaps, not by brothers and sisters, and predecessors, uncles and aunts, fathers and mothers, grandfathers and grandmothers, having had the disease, but by having had other affections of the nervous system. The same state of the nervous system will frequently not produce the same disease—one shall have epilepsy, and another some other nervous affection. When, however, you see these things in different generations, you may class them together, and consider them as the developement of an hereditary predisposition. You continually see in females something wrong in the nervous system, but it does not produce the same effect in all; some will have one thing and some another. You will frequently see epilepsy conjoined with a curious form of the head: it is very often united with a deficiency of intellect—with a deficiency of brain—and of course fatuity, or idiocy. Idiocy, I may mention is the term given to that imbecility of mind which is connate, and fatuity to that which occurs after birth. You find many people have a narrow forehead—a low forehead, sloping back; and you find them have epilepsy. This is not universal—neither is it general; because any derangement of the nervous system may produce epilepsy. Many persons are idiots, not from there being a deficiency of brain, but the brain is of bad quality. But there is one kind

which depends entirely upon a deficiency of the anterior part of the brain. Where such is the case, it is common for epilepsy to be united with it. It is very common to find a sugar-loaf form of the head in epileptic patients. It is frequently united with a large head; sometimes it arises from a preternaturally thick bone; and, on the other hand, you have epilepsy in the most beautifully formed head, simply from some accidental disease in the head.

LECTURE LII.

DISEASES OF THE HEAD AND NERVOUS SYSTEM.—EPILEPSY.

SOMETIMES this disease is connected with a head rising back in a sugar-loaf form, but it is frequently seen with an exceedingly narrow, contracted, short forehead; not that I conceive that has any thing to do with the production of the disease, but where the brain is more or less deficient in development, very frequently the patient is likewise epileptic. It sometimes exists in chronic hydrocephalus, and various other diseases of the head. There is a predisposition to it, indeed, from any cerebral disease whatever; whatever disease may exist in the brain, the person so affected is very liable to have epilepsy. The same state which produces one disease of the brain, may, either by its intensity, or by extending to other parts, produce epilepsy. Very often, however, you will find the predisposition to this disease inexplicable. You will see a person seized with an epileptic fit from some circumstance which will not produce it in another, and yet between the two individuals you can discover no difference. It is the same with all other diseases; you see a predisposition, or an indisposition, to them, unconnected with external circumstances. If the predisposition be very strong, then the slightest exciting cause will produce it; such as shall scarcely more than quicken the pulse in another person. It has followed tremor: you will find many cases of epilepsy evidently ascribable to extreme dread. Injuries of the head, not in one part merely, but any part, will produce it. The suppression of habitual discharges, whether natural or artificial, has the same effect; and so also has the suppression of irritation.

It will arise in females from a suppression of the menses; and, in males, from the suppression of an hæmorrhoidal discharge which has become habitual. It arises from the cessation of a mere irritation; for example, from the cessation of an accustomed cutaneous disease without discharge. The cessation of gout will produce it, and also tumors, especially if they be situated on the head. The presence of the tumor produces inflammation of some particular part, so that epilepsy occurs; or the tumor being removed, causes a greater quantity of blood to be thrown on the brain, and thus the disease is induced. In fever the brain is frequently in a state of great excitement, and epilepsy occurs. Sometimes, among other symptoms, it has been excited by worms in the intestines or stomach; by teething, and even by a stone in the bladder. Any irritation of any part of the

body whatever, if it amount to a certain point, and the person be pre-disposed to the disease, may produce epilepsy. There is an instance mentioned in the Edinburgh Medical Essays of the disease being produced by a small hard body in a nerve at the lower end of the gastrocnemius externus muscle. The disease had existed twelve years, but on this body being removed it entirely ceased. It is produced, as you have already seen, by inflammation of the membranes of the brain.

Poison will produce it; mineral poisons,—lead, for example,—and all the tribe of vegetable narcotic poisons will give rise to it. Small pox will also produce it. Dangerous hæmorrhages may produce it: when a person is almost expiring from hæmorrhage, the collapsed state of the brain, the want of blood, excites convulsions. In some persons common copulation will produce it, the *æstrum venereum*; so that some persons have got into considerable difficulties from being subject to epilepsy. Imitation will produce it, especially in females; if they see it in others. Mere inflammation of the brain, or injury of any part of the head, may cause it, when there has been no disposition to the disease before; and it may entirely cease on the cessation inflammation within the head, or the cessation of any cause of excitement there whatever.

MORBID APPEARANCES.

On this account you may frequently expect to find nothing in the head: as any irritation of any part of the body may produce it, it is not reasonable to suppose, that you must, in all cases, find disease in the head. It may, however, arise from inflammation and irritation of various kinds in the head itself; and under such circumstances you may expect to find disease in that part. Sometimes, on opening epileptic persons, you find nothing at all in the brain; even when there has been no evident exciting cause at a distance. When there is an exciting cause at a distance, you cannot expect to find any thing in the brain; but where you can discover no existing cause at a distance, where there is no stone in the bladder, no tumor, no worms in the intestines, where the cause has been supposed to exist solely in the head, the disease has sometimes, and not unfrequently, disclosed nothing after death. It has appeared to be a disease of mere function, and has not produced any structural change. This, however, is always to be taken into account—that a great number of persons who open heads are not qualified to do so; that is, they are qualified to perform the mechanical operation of opening the head, but they are not able to say that every part is perfectly sound. After this disease, we find, occasionally, an abscess in the brain, softening of the brain, induration of the brain, and tumors in and upon it. We also find exostosis, thickening, and effusion; not that the thickening and effusion have been the cause of the disease, but the irritation which produced the epilepsy likewise produced effusion and thickening. You may find every disease that is found in the brain, in persons who have been epileptic, because any organic affection of the part may produce the disease. Dr. PRITCHARD says, that he

witnessed two dissections where nothing was seen in the brain. There was a man in St. Thomas's Hospital who had been there from a boy, who used to tumble about, and I have heard that he was drunk. He died some time ago, and his brain was examined; and, although he was idiotic as well as epileptic, it was said that nothing whatever was discovered. WENZEL, a German anatomist, and others, formed a society for the investigation of cases of this disease, so far as it regarded the *post-mortem* appearances; and they say, that in fifteen cases out of twenty the cerebrum was sound, but the pineal gland was diseased, and also the cerebellum, which was altered in consistence, colour, and size. I have opened persons who have died of epilepsy, and nothing whatever has been found in the cerebellum, or any where else. And, again, one sees the cerebellum continually diseased without epilepsy. I believe the truth is, that any irritation whatever will produce this disease, which is nothing more than a great excitement of those parts connected with the voluntary muscles.—You will find it stated in Dr. CARTER's account of a lunatic hospital in France, that one of the physicians there, among the number of lunatics under his care, examined about thirty adult persons who had been labouring under this disease, and he found no disease of the brain, but of the medulla spinalis. These observations were too limited. Although this disease so frequently arises from an inorganic affection, or a temporary source of irritation, yet it is an infinitely more permanent disease than St. Vitus's dance, or hysteria, and infinitely more frequently does it arise from organic causes. It arises less frequently from structural change than palsy; but infinitely more frequently from that source than either chorea or hysteria. Perhaps whatever spot is the source of irritation in the whole body, whatever spot even of the brain itself, the cerebrum, or the cerebellum, it is probably the medulla oblongata which is the chief seat of excitement. My reason for arriving at this conclusion is, that pressure on the medulla oblongata always causes sleep. This has been ascertained experimentally in individuals, where no other part of the brain existed than the medulla oblongata, the cerebrum and the cerebellum having been deficient. It is said, that in the case of certain fœtuses, if the medulla oblongata be slightly compressed you have convulsions, but if it be more compressed you have sleep; and it is also ascertained, that if a sharp instrument be passed into the brain there is no sensation felt, but as soon as it reaches the medulla oblongata, or the origin of the nerves, as people sometimes say, you have epilepsy. I think these circumstances make it probable that, whatever the cause of irritation is, it acts there.

We have first to make a diagnosis of this disease from nothing, to ascertain whether it is in existence at all—not to distinguish it from other diseases, but to distinguish it from nothing at all. This necessity arises from the circumstance of impostors frequently pretending to labour under this complaint, because it looks so frightful, and excites so much the attention of by-standers.

DIAGNOSIS.

In the feigned disease, the pupils are not dilated, the nails and the face are not livid, and if the hands be forced open, they are instantly clenched again. In real epilepsy, if you force open the hands they remain so; but if a person be feigning the disease, and you open them, he will close them. Some imitate the foaming of the mouth by putting a little soap under their tongue. Again, in the feigned disease there cannot be such palpitation and rapidity of the pulse as in the genuine affection. The impostor by tossing about may quicken the pulse, but he will not produce that thumping of the heart against the ribs which you find in the real fit; and in the feigned disease he does not very well bear the putting the edge of your thumb nail under his, so as to make an attempt to tear the cutis from the nail. It is borne in real epilepsy. In the feigned disease they generally take pains to fall down in a comfortable place; they do not fall against the fire or hot bars, nor against the edge of a table, and so run the chance of getting a black eye, or lacerating their face. One other mode of ascertaining it is to propose in their hearing some terrible means, such as the actual cautery; if they hear that, and especially if you bring a red hot poker, they will instantly get up. You will distinguish epilepsy from hysteria by there being in most cases a complete loss of sense, by there not being globus hystericus, and no laughing, crying, sobbing, nor shaking, during the convulsions, and no delirium. Occasionally you have hysteria in epilepsy, and you have then globus hystericus; but if it do exist, it is only in a slight degree, you are justified in considering it a case of hysteria rather than epilepsy. If there be globus hystericus, you will expect all the symptoms of hysteria together—laughing, crying, sobbing, and perhaps a copious discharge of very limpid urine. The best mode of making the distinction is not to depend on one symptom, but to take a general survey—to remember that in epilepsy there is usually a complete loss of sense, and that in hysteria there is only an incomplete loss of sense, and above all the fits do not come on regularly before convulsions; patients will become sensible, and then in the midst of their sensibility, the disease begins again, whereas epilepsy generally goes on in a pretty regular manner. If the cause be evident and is of a temporary and removeable nature, your prognosis would be favourable; but if you cannot discover a cause for it, but see at the same time that the cause is not of a temporary nature, or within your power to remove it, then your prognosis should be unfavourable. If you discover the cause, and find it cannot be removed, still of course your prognosis must be bad.

TREATMENT.

The disease altogether is one of the most intractable you can have to treat: it is a disease which in the large majority of cases cannot be cured, though in most cases you may lessen it.

The first thing to be considered, provided you do not find an exciting cause which it is in your power to remove, is, to consider whether

the patient be plethoric or not, or if there be any inflammation. If there be an inflammatory state within the head, or the patient be plethoric, without inflammation, then blood should be taken away. In the fit itself, there is nothing to do but to place the patient's head high; to put him out of danger, so that he may not knock himself; to loosen his neckerchief, and put a piece of cork or wood into his mouth, to prevent him biting himself. If there be any danger of apoplexy, of course you may bleed; but this is not usually the case. In the convulsions of infants I stated that cold affusion had been found to do good, and I do not know that in epilepsy it would do harm. Some persons say that they have recovered patients from these fits, by putting salt into their mouths. I know that you may frequently recover hysterical women by this means; I have seen them shake their heads, splutter, and open their mouths; but epilepsy is not so soon got rid of; still, however, it may do some good. If there be aura epileptica, then you may frequently stop the disease by putting a ligature between the part from whence it arises and the centre of the body. In a case of this nature to which I have already alluded, where there were two auræ, a ligature was placed on each side, and when the patient complained of the sensation, some one tightened them, and at last the fits ceased so long that he went out of the hospital; but I heard, after a still further lapse of time, that they had returned. If it be ascertained that there are worms, you cannot tell whether they are the exciting cause; but it is right to remove them. If there be a stone in the bladder, the operation of lithotomy should be performed. There was a case of a man, many years ago, who had received an injury of the head, and in whom epilepsy ensued. A surgeon at St. Thomas's hospital imagined that the removal of the piece of bone might cure the disease—that a spicula of bone was most probably proceeding from the inner table. A circular piece of bone was removed by means of the trephine, and there luckily was the spicula, and he never had a fit afterwards. Mr. WARDROP cured a case of epilepsy, beginning with aura in one finger, by amputating the small joint of the finger.

The disease frequently arises from mental causes, and physic can be of no use; we must administer to the state of mind, if it be in our power to do so. The disease once pervaded a whole school in Holland, in consequence of imitation. One of the boys had epilepsy, and the whole school became epileptic. The boys were all arranged round the room, and were told that the first boy who fell in a fit should be flogged. This put a stop to the disease. If the disease have appeared on the cessation of another, we should, if possible, re-excite the original disease. If it occurred after gout and rheumatism, we should apply strong mustard poultices to the joints; but, besides that, we should endeavour to lessen an inflammatory state in the head, notwithstanding we were endeavouring to re-excite the disease at a distance. Supposing there is no exciting cause to be found, then you may almost always do good in the disease by adopting antiphlogistic treatment. In the first place, in general you find it useful to insist upon complete abstinence from distilled and fermented liquors

—wine, spirits, and beer of all kinds, and gradually from meat. Persons cannot bear an abstinence from meat well at first; but if they abstain from it gradually no inconvenience is felt, and a great number of persons can live very well without it. You should also persevere in keeping an open state of the bowels; there should not only be one motion a day, but two. The head should be kept constantly cold by the use of a shower bath and frequent washing. If the patient be plethoric, venesection, bleeding, and leeches, will be found very useful. Of course, the degree in which all this is done must be varied in different people, and some persons are too weak to admit of any thing of the kind; but if their state of body will admit of some part of this antiphlogistic treatment, and more especially if it will admit of a great deal, you will find great alleviation. I know that most persons who come to the hospital are relieved, but I believe none are cured, and I have little doubt that the benefit they derive there is simply from antiphlogistic treatment. Many are better before there is time for medicine to have any effect, because they are instantly put on milk diet or gruel. Recollect that this is not to be borne in every case; that there may be debility, and that a patient may be made worse by a plan of this kind; and even where a plan of this kind is proper, you may make them worse by carrying it too far. I have seen many cases where patients were better to a certain point, and beyond that, by lowering them, they became worse, and then, by going back to that point, they were better again. But it is necessary, even if patients be weak, if you cannot push antiphlogistic regimen to any extent, still to avoid stimulants, and those things which cause a flow of blood to the head, and great excitement of that organ. Setons, issues, and moxæ, are sometimes useful. The application of tartar emetic ointment at the back of the head and scalp is a very severe mode of treatment, and I have not found much benefit from it. There may be irritation; there may be mere chronic inflammation; there may be something to be absorbed; and mercury may do good in such cases. Iodine may likewise do good as a part of the treatment, but I should not advise you to try it very far. As a part, I may say, of antiphlogistic regimen, mercury and iodine are serviceable: they act by causing absorption; but I am not aware that they do good, except in removing the effects of chronic inflammation. There are certain specific remedies in this disease which we employ empirically. They will not cure the disease once in many times; but when they do act beneficially, we know not their mode of operation. The nitrate of silver is one of these. You may begin with the eighth or the sixth of a grain in a child, but to an adult you may give a quarter, or half of a grain, and increase it to six or seven grains. DR. FOWLER says, that he once gave fourteen grains every six hours. I know that when you get to a few grains, it frequently purges too much, so that you cannot push it farther. It is a remedy which has a tendency to excite gastritis. The salt, or muriatic acid, that is in the stomach, is decomposed by it, and that is the reason why some people bear a great deal. It has tendency to act on the mucous membrane of the stomach, and therefore, when

you are exhibiting it, you should press on the stomach, to see if there be tenderness. There is no rule for the dose; some will have these effects from one or two grains, and some will bear five or six with impunity. But, besides these immediate effects, there is another, of a chronic nature; it has a tendency, if it be given for a length of time, to make the skin blue. The decomposed salt is deposited on the surface of the cutis, more and more decomposition takes place, and the cutis becomes black. You will see some persons almost as dark as mulberries, and you would fancy that they were going to fall down from congestion of the head; but they are merely stained by this medicine.

I have frequently seen the sclerotica nearly of the colour of things that some people wear to preserve their eyes, called *preservers*. It will also blacken the tongue or fauces. It is to be remembered that a large dose is not required in order to induce this effect; that a small dose, if it be continued for some time, will lead to the same unpleasant results. It does not much depend on the quantity as on the time that the medicine is given, and on this account I think you should be cautious in giving it in private practice above a month; and, as I do not think a month sufficient to produce any beneficial effects, I seldom use it. In the case of young ladies it should be exhibited.

The preparations of copper, cuprum ammoniatum, and sulphate of copper, I think still more useful than the nitrate of silver. I have seen benefit result from them. It is best to give the fraction of a grain, and increase it gradually. In cases where a large quantity is borne, you will find it exceed one, two, or three grains a day, and very frequently by no means so much. They occasion sickness and gastrodynia. Iron has been proposed in this disease, but I cannot say that I ever saw it do good. I have no doubt, when a person has been lowered improperly, that it will do a certain amount of good as a tonic. I had a patient under my care who had been bled and starved, who had had issues, setons, moxæ, and every thing that could be imagined; he went through the operation of a large number of things, and was much debilitated. Some gentleman gave him iron, and he told me that it cured him. I have no doubt but that he had been reduced too low, and that iron did him good as a tonic; but six months afterwards he applied to me again as bad as ever. Dr. RUSH, of America, states that the acetate of lead has very great power over the disease. In large quantities, it will sometimes cause the disease: where persons have been poisoned by lead, from taking a large quantity into the stomach, or have been much exposed to its exhalations, epilepsy has been produced. Of course that is no argument against its moderate use. The sulphate of zinc as well as the oxide. I have given it in St. Vitus's dance: you may exhibit it in large quantities, sometimes twenty or twenty-four grains. The oxide of tin has been much praised, and so has arsenic; but I have seen persons, from taking the latter, become epileptic. Narcotics have been recommended, especially stramonium. A cold shower-bath is useful in the disease, for it strengthens the constitution with-

out excitement ; and it may knock down excitement by its antiphlogistic effects.

The oil of turpentine is occasionally useful, but far less so than in hysteria. In hysteria it is an excellent remedy, but if there be worms, in epilepsy, you cannot use a better medicine than oil of turpentine. Dr. PRITCHARD thinks that if the intestinal canal be diseased it may be good. In amenorrhœa it may be serviceable ; not by exciting the menses, but by removing the state which induces the affection ; and so in the case of worms. If it remove intestinal affection, then we cannot say that it is good in epilepsy in general, but it removes the cause in those particular cases. Some contend that it is useful in epilepsy combined with insanity. I believe it has a particular effect on the nervous system ; and where it has been said to be beneficial in epilepsy, I should suppose it was where there was some other disease. It has been given in two ways : in small and repeated doses, and in large and less repeated doses. Twenty drops have been given two or three times a day, or an ounce every two or three days. Some have given a drachm once or twice a day. Now all these things may fail, entirely through our not attending to antiphlogistic regimen. It is possible that cases happen now and then that would yield to some of these remedies, but we neglect to lower the patient. I am quite sure that remedies are frequently prevented from doing good because we do not remove a plethoric state of the system. In some local inflammations, and in many cases of various diseases, it is necessary to lower the system to a certain point, and then remedies which would not otherwise be useful become so.

The reason that so many remedies are so uncertain and so unsatisfactory in this disease, is very evident. This is a disease which arises from every sort of irritation in every part of the body ; and the irritation may be structural, may be slow inflammation, or something we cannot remove. If it arose from one cause, it would be a different thing ; but it will arise from any cause whatever, physical or mental, organic or inorganic, and situated in any part of the body. You will see, therefore, not only that it must be usually an incurable disease, but you will see that there can be no one remedy for it.

LECTURE LIII.

DISEASES OF THE HEAD AND NERVOUS SYSTEM.—HYSTERIA.

IN this disease there are fits of general convulsions and insensibility, like epilepsy ; but not a continuance of the insensibility after the convulsions are renewed in the midst of the insensibility. There are also sobbing, crying, laughing, and shrieking in the fit ; but particularly before and after it. You will generally find the insensibility is incomplete ; the patient has some knowledge of what is going on around, or if she have not all the time, yet she has more or less of the time. There is also experienced a sense of choaking, as if there were a ball in the throat which they can neither get down or bring up, together with irregular breathing, so that you observe them panting, and the

breasts heaving up and down. Frequently you have hiccup. Sometimes there is a rumbling noise in the belly, and they experience a sensation as if a ball were rolling to and fro, till at last it comes to the epigastrium, and from thence rises to the throat, where it sticks, and then the convulsions begin, and down goes the patient. The belly seems to swell, and no doubt it does. In a few minutes, sometimes, a woman will be filled with wind. There is frequently also a great secretion of limpid urine, and this unfortunately is sometimes discharged. There is also violent palpitation, just as in epilepsy. These fits will come and go in rapid succession: there is not merely one systematic fit and all is over, but there is a succession of these fits. Occasionally you find extreme tenderness, not during the fit simply, but during the time that women are subject to these fits, and it extends over the whole of the surface. If you press ever so lightly on the chest and abdomen, you find them complain, and the same is felt more or less in the extremities; but it is particularly the case with the trunk, and this has often been mistaken, and no doubt still is, for inflammation. Patients, when they are seized with hysteria, are sometimes violently delirious, so that a stranger would imagine there was phrenitis which required active treatment; but you observe that it comes on suddenly, and there are other hysterical symptoms. Sometimes patients have locked jaw, the mouth being closed, and sometimes they have other tetanic symptoms: but that is the general one. Sometimes, from the violent affection of the voluntary muscles, they have a sensation of extreme pain fixed in some part, called *clavus hystericus*—a sensation as if a nail were driven in; and I have no doubt that it is the same as the generally diffused morbid sensibility of the surface, only that, instead of being diffused, it is collected in one spot, and is therefore more acute than when diffused. Sometimes there is catalepsy. There are all kinds of movements of the body, and all kinds of noises made.

This is a disease which occurs much more frequently in females than males, and in females particularly during the sexual period, that is to say, during the thirty years in which they are in their prime, from about fifteen to forty-five in this country. It must vary in different countries. If the disease appear at other periods, it is more frequently earlier than later: you more frequently see girls who have not menstruated hysterical, than old women who have done menstruating. But, although this is a disease usually seen in females, it is certainly not altogether confined to them; for it will sometimes be observed in boys and men of very violent emotion.

Epilepsy is a disease which only occurs in certain individuals, as it would appear, from a certain degree of predisposition; but any mental emotion will cause more or less hysteria in almost any woman. Anger or grief, especially grief from disappointed love is the most common cause. I presume it is quite as frequent from disappointed lust. It occurs particularly during the uterine period of life—during these thirty years. *First*, because derangements of the uterus are a very common source of the disease, and of course the uterus is not deranged particularly except at that period during which it performs its

functions. Women do not suffer much in the uterus till it performs its functions, and very little after they have ceased, except in cases of organic disease. It is during the period of its activity that it suffers particular derangement, and, therefore, during that period, it will suffer particular sensations. *Secondly*, it is during the period of menstruation that women have their attachments strongest. Sorrows of all sorts, whether real or imaginary, take place with the greatest severity during that particular period. *Thirdly*, it is during that period of life that a woman's character becomes altogether developed when she begins to menstruate, and after the period of menstruation all her feelings become more or less obtuse. I should suppose there is scarcely a woman who has not had hysteria in some slight degree, such as a choking in the throat; but it is generally a temporary disease and by no means dangerous. Sometimes it is dangerous, but very rarely so. Epilepsy is so obstinate a disease as to be an *opprobrium medicorum*, but hysteria generally at last ceases, although it may continue for a long time. Emotion of mind, costiveness, plethora of the head, suppression of menstruation will cause it.

TREATMENT.

You must set the patient up, loosen any thing about the bosom and neck, and if you find plethora, so that there is danger of apoplexy, you would of course bleed her. The best thing, however, and one that does answer so good a purpose in apoplexy, is to souce the patient well. If you get a pail of water, or a large wash-hand basin full, and throw it strongly upon them, they are almost sure to come to. The water requires to be thrown with considerable force, and you should not spare it. It is in hysteria that filling the mouth with salt answers the best purpose.

We must look out for any exciting cause, and if we can find it, remove it if possible. In the next place, we much adopt antiphlogistic treatment, provided there be signs of congestion of the head. There is so continually mere fulness of the head in this disease, and so continually does costiveness produce it, that bleeding and purging very speedily in general get rid of the disease; or mitigate it considerably. Women, you know, are much more subject to costiveness than men; and their pelvis being large, it will hold a great deal, and therefore you continually have women tell you that they have not had a motion for a week. At charitable institutions, particularly dispensaries, where patients attend in great numbers, we find costiveness occurs far more frequently among women than men.

It was supposed formerly always to arise from the condition of the womb, and the name of the disease, *hysteria*, comes from *υστερα* the womb. HIPPOCRATES says that it occurs only in females, and the idea of its dependence on the womb is shewn by the name which poor people give it—"the fits of the mother." The swelling of the belly, and the rumbling noise ascending up the throat, was thought to be occasioned by the rising of the womb. The doctors formerly endeavoured to get rid of the fit by attracting the womb, and also by driving it downwards, by putting assafoetida, garlic, and all

sorts of stinking things into the mouth, to warn the womb to descend out of the way, and putting roses and possies below, to attract it downwards. Although the disease frequently does arise from the state of the womb, yet very frequently it does not, and therefore, in all cases, we should examine into the state of the womb. If we find amenorrhœa, we should endeavour to remove it by cupping the loins, and when we have done that, provided the state of the patient will allow it, we should stimulate the womb by oil of turpentine and injections of ammonia thrown into the vagina, and if possible, we should recommend marriage, which is by far the most effectual mode of curing amenorrhœa, in many ladies. But I believe that where it does arise from something connected with sexual desire, the cause is for the most part situated in the head. It is astonishing how many young women, with good full bodies, have pain of the head and cerebellum, and I know that if you cup that part well and purge them thoroughly, you may frequently get rid of a number of cases of hysteria without attending to the womb.

The collection of symptoms called hysteria will sometimes occur in males—in boys and young men whose constitution approaches to that of females, and who are susceptible of violent mental emotion. Besides removing any exciting cause that you can discover, removing a plethoric state of the whole body by bleeding, low diet, and purging, you will find it necessary in other cases to do just the reverse, precisely as I mentioned in epilepsy; but these form only a very small number of cases. You may find it necessary to give tonics, and I think iron is the best, together with cold affusion and cold bathing. I think the cold bath answers better than any thing else. Occupation is essentially necessary, and, if possible, a good regulation of the mind. For certain symptoms various remedies are useful. For faintness and choking, you will find the foetid gums, although they have been given on a strange hypothesis, very useful. Assafoetida by the mouth and anus are very proper. Camphor and musk are more or less serviceable for the wind following the spasms. Stimulants of various descriptions are often required. For the extreme langour the patient feels, and the extreme sinking of which she complains at the epigastrium—(some patients complain of experiencing a sensation as if they had no inside)—you find stimulants absolutely proper, particularly that preparation of iron called ferrum ammoniacum. All the tonic medicines that I recommended in epilepsy are useful, and frequently they will cure the disease. I am sure that the best way is to remove any exciting cause that may exist; to get the womb into good order, to prevent all fulness, and if there be debility to remove it: let the patient be in the open air and occupied, attend to regular exercise, and use the shower-bath frequently. There can be no doubt that regular hysteria is situated in the head. If you see a patient partially convulsed, it may arise from an affection of the spinal marrow; but in hysteria, muscles are affected that arise above the spinal marrow, in addition to which there is insensibility, which I should suppose shews that the seat is in the head. You see patients laughing, sobbing, crying, and then they are in high spirits again all at

once. I suppose it must be an affection of the brain, just as is the case in epilepsy, only that it arises from a variety of causes situated in a variety of parts. The treatment of this disease is for the most part very successful, because there is scarcely a predisposition required for it, and the slightest exciting cause is sufficient to produce it. Although it would cease spontaneously, you may expedite the cure. It very rarely arises from an organic affection in the head, as epilepsy does. As to the other affections, the palpitation, the faintness, and all these things, they only shew the extent of the affection.

The trismus I mentioned may in general be got the better of by a good dose of oil of turpentine. You may throw up two or three ounces by the rectum, or give it the patient to swallow; but the latter is not an easy matter. The jaw generally opens as soon as the turpentine reaches the intestines; and I have never seen it fail in effecting a cure. Sometimes it has instantly removed the affection, but in other cases not for a few hours. I have seen paralysis of the whole of one side—hemiplegia: but it went away. I recollect particularly one case of a young girl who was seized at church. I suppose they got excited by the discourse, by the heat, and sometimes they see persons whom they like very much. By dosing her well with oil of turpentine and bleeding her copiously, she got completely well very speedily. The paralysis is not of a permanent nature, but depends on a temporary state, and by free bleeding and purging, and especially by the exhibition of oil of turpentine, I have seen it go away. I do not know a better remedy for a great number of cases of hysteria than this.

The symptoms of insensibility, of trismus, and of paralysis, will give way much better to this than to any thing else; but it is right in many cases to bleed, in consequence of the state of the head. The turpentine may take no purgative effect till a dose of castor oil is given, and then it goes to work directly. In common hysteria it is one of the best things you can employ. In the same class of medicines are the fœtid gums, and wherever you think proper to employ them, you may employ the oil of turpentine to the same advantage. It has the property of a strong purgative, though it requires to be set off by something else. You may give one ounce first, to see if that will do, and then follow it up by castor oil. You frequently see nervous women in a state of what they call *the fidgets*. They cannot sit still a minute, and the state is exceedingly distressing. You sometimes see this removed by the warm bath, but it is best combatted by mild narcotics. Sometimes I have given opium, and, now and then, I have known prussic acid tranquillize them when nothing else would; but, in other cases, you will find other things do good. You find the shower-bath, if you can get them to use it, of great service. Besides this state of morbid irritability of mind and body, they are very perverse, but I am satisfied it is a morbid state. I have known them correct the medical attendant, scold, and even swear, and do all sorts of malicious things, pretending to be worse than they are. Some of these attacks will come on periodically, particularly at the menstrual period; and when they fall into this extraordinary state, it can only be treated on the same general principles as com-

mon hysteria. You will find the pain of which I spoke, the morbid sensibility, a very remarkable circumstance, and you may frequently be deceived by it. I confess, that I knew nothing about it for many years. Females, with some slight hysterical symptoms, will say, they are so tender they cannot bear pressure; and such appears to be the fact. The least pressure gives them agony. If you press the integuments, or if you rub them, you find them instinctively turn away, shewing that it is situated in the skin. Sometimes it extends over the whole body even to the extremities, and sometimes it is confined to the abdomen. There is no pretence in all this, I am quite satisfied. I saw one young woman who had been in bed three months in this state. She had been blistered, and leeches, but without any benefit whatever.

I saw one young lady, about nineteen, who was lying in bed in this condition. The uterus, I understand, was disturbed, so that she menstruated scantily, and there was fluor albus. Her bowels were constantly costive, so as to require medicine. There was constant pain of the head, and much tenderness of the abdomen, so that any one would, without care, have thought it was inflammatory. She could not bear the least pressure, and yet there could be no inflammation, for the pulse was only fifty-eight, and the tongue was clean; and although there was much pain in the head and eyes, there was no drowsiness, no intolerance of light, and I had no hesitation in considering it a variety of hysteria. I had a woman, forty years of age, in the hospital, who, when I touched her, cried out lustily. I have treated these cases on the same principle as neuralgia, supposing them to be an affection of the nerves, with iron, and they have all done well. I have not found it so in that particular state called *clavus hystericus*, where the pain is all felt in one spot; but, where the pain is diffused, it is one of the best medicines that can be employed. As to hysteria at large I do not believe that iron has any power over it; it is only in those cases where there is debility that it is of use, not, I presume, from any specific power over the disease, but as being the best tonic. There is a disease, which, I cannot help thinking, is merely a variety of hysteria, termed

CATALEPSY.

In this form of the affection, the voluntary muscles will take on any state that you think proper to give them, and so they will remain. You may mould the body into any form you choose. If you take an arm, it is so limpid that you may mould it the same as a joint of meat. In this state consciousness and perception are sometimes entirely destroyed, and sometimes only partially so. Dr. GREGORY used to speak of the case of a lady who had undergone great mental anguish, and she was seized with catalepsy. When she appeared unconscious, if her child were presented to her she gave signs of knowing it, but that was the only proof she exhibited of knowing any thing. This disease occurs more frequently in women than men, just as hysteria does; but, like hysteria, it sometimes occurs in males. There is a case mentioned by BOWEN, of a deserter who was captured, and when taken shrieked

violently, and then entirely lost his voice from the violent mental emotion. He was a man of no great courage. He became immovable and unconscious, and then fell into catalepsy; so that you could mould him into any thing. This man neither ate nor drank, nor did he discharge his fæces or urine for twenty days, at the end of which time he sunk. Occasionally the affection has been periodical. Dr. HEBERDEN mentions, in his Commentaries, that he once saw a case at St. Thomas's Hospital, which he visited from curiosity. The woman was thirty-six years of age, and had a paroxysm of catalepsy morning and evening. It usually continued from one to three hours, but on one occasion it lasted twelve hours. The fits came on without any warning; and during them, he says, the pulse and the breathing were natural; the eye was fixed, as if she were looking attentively on some object; the arm continued as it was placed for twenty minutes together, and once for a whole hour, and he was told that it would sustain a weight of seven pounds in any posture in which it was placed. The jaws were closed; but if the nostrils were closed, then the mouth opened for the purpose of breathing. A slight winking was noticed on approaching the finger to the eye—a little contraction of the iris.

The symptoms of the disease are not always regular: it is sometimes impossible to mould patients; they are perfectly rigid, and you can lay them out like corpses. This is a disease not necessarily dangerous any more than hysteria, but it appears now and then to have proved fatal; or, at least, that state of the system in which it has occurred has proved fatal.

It is necessary in this disease, just as in hysteria and epilepsy, to ascertain whether the case is real. HUNTER discovered that a case of this disease was feigned, by putting a string round the wrist of a patient after the arm was extended, and appending a weight to it. The string was suddenly cut, and the man having no weight to support, the arm was immediately raised. It appeared to JOHN HUNTER, that the man had sustained the weight by the exertion of his muscles, and the string being cut, he instantly threw up his hand. Another device has been, to throw a person labouring under the disease into a cistern of cold water. If the disease be genuine it is supposed they will go to the bottom, but if not they will make an effort not to be drowned, and will struggle about. I should not, however, consider this any proof, because nothing is so good in hysteria as throwing a woman into cold water. You therefore see, that, in catalepsy, plunging the party in cold water is likely to stop the paroxysm; and, if the paroxysm be stopped, then the person may struggle about, and yet not be an impostor.

The treatment of the disease when it is real, I believe the best mode is to adopt exactly the same plan as in hysteria. There are cases which, I have no doubt, will be best remedied by antiphlogistic measures, and the removal of plethora. On the other hand, there are cases which will be best treated by tonics. The general principles will be the same as in hysteria.

One form of hysteria is long-continued insensibility, which is termed

TRANCE.

Sometimes there is continued insensibility for a few days or weeks. Sometimes they will eat, if food be put into their mouths, and sometimes not. Sometimes they will wake for a few hours, or do certain things, shew some power over volition, and then fall into the same state again. Some will open their eyes, and then fall asleep again. Some, in this state, are perfectly conscious of what is going on around them, but cannot make the least effort. There is an instance mentioned of a female—these strange things generally occur in females—who was presumed to be dead. Her pulse could not be felt, and she was put into a coffin, and as the coffin lid was being closed they observed a sweat break out, and thus saw that she was alive. Of course she was not interred; and ultimately she perfectly recovered, and then stated, that she had been unable to give any signs of life whatever—that she was conscious of all that was going on around her—that she heard every thing—and when she found the coffin lid going to be put on, the agony was dreadful beyond all description, so that it produced the sweat seen by the attendants.

I have seen a case where the patient continued two or three weeks, with the exception of short intervals, in a state of insensibility, though not without signs of life, because the heart was still beating; and sometimes she did, in this state, certain voluntary things, and would afterwards be conscious of it. Sometimes she would be unable to do any thing, and yet retain her consciousness, so as to mention it afterwards. Hysteria, in these irregular forms, although for the most part a disease without danger, may become dangerous. I saw one young lady die after regular hysteria, and another after a trance. In fact, two sisters were affected in the same way, one of whom died before I saw her, and I went to see the other. Although she was well supported every hour, as she lay apparently a corpse, yet I believe she died. The other was a case of regular hysteria, and I concluded the patient would do well by ordinary treatment; but all at once she died. Swelling of the hands came on, the pulse became weak, and she sank, why I cannot tell.

Sir B. BRODIE says hysterical women sometimes, when the hysterics are over, have an affection of the joints—evanescent stiffness of the joints, heat, and pain. In the young woman seized with hysteria at church, which ended in hemiplegia after she got rid of the hysterics, one knee was stiff, notwithstanding applications were resorted to for a month. Sir B. BRODIE, in one of his lectures, mentions the occurrence in the wrist, but, in my practice, I have seen it in various parts of the body.

LECTURE LIV.

DISEASES OF THE HEAD AND NERVOUS SYSTEM.

I SHALL NOW proceed to consider those diseases of the nervous system which are marked by no excitement, but by a simple deficiency either

of sensibility or motion. The first of which consists of a deficiency of sense and motion together—a disease marked by profound sleep. It is mentioned in the Philosophical Transactions for 1694, that a man, twenty-five years old, who resided near Bath, slept nearly a month in a state of lethargy. In two years he again fell into an inordinate sleep. At first he ate, drank, and discharged his urine and fæces; but at length his jaws set, and he ate nothing more, and did not awake for seventeen weeks. In August he fell asleep again; he was bled, stimulated, and treated *secundum artem*, but did not wake till November. It is mentioned in PLOTT's Natural History of Staffordshire, that a woman slept forty days. In the Medical Observations and Inquiries, there is an account of a woman who slept seventeen or eighteen hours every day for fifteen years. Dr. GOOD mentions seeing a lady, who was only in the habit of waking for one or two hours two or three times a week, during the summer. I believe an affection of this description is not dangerous.

Dr. WILLAN mentions, in his Reports of the Diseases in London, that lethargy is very common among the Jews, and that it frequently ends in fatal apoplexy. Occasionally, after, persons will sleep for a very considerable time. WILLIS mentions a case of putrid fever which terminated in a perfect sleep of four days; and at the end of that time the man was imbecile for two months. Mr. J. BELL saw a man who, in consequence of a fall, lay a great length of time in a sleep of this description; and when he awoke he was incoherent; but he finally recovered. But we frequently see a very profound sleep, beginning suddenly, and very often ending fatally, leaving palsy behind it. This affection is called

APOPLEXY.

In this intense description of sleep there is a great diminution, or loss, of sense and motion; slow, laborious, and generally stertorous breathing—a loss, indeed, of all the animal faculties. It is generally sudden; whence its name *απο* and *πλησσω*, to strike, the person being struck down. If a person be upright, or walking about, or sitting, he falls down, and sometimes dies on the spot; he is dead in an instant, as if he were shot. If, however, death does not take place instantly, you observe the pulse to be generally slow and full; the face is livid and flushed, and also swollen. The lips particularly are livid, and there is generally a little degree of froth, though not to be compared with what is seen in epilepsy, proceeding from the mouth, and a blowing frequently from the lips and nostrils. The lips do not act in the same way as they do when we are in moderate sleep, or when we are awake; the air forces them open, and their elasticity brings them back again; so that the lips are constantly moved, together with the *alæ nasi*. The pupils are usually dilated, and the eye is insensible and closed. The cornea looks dull and glassy, the eyes are frequently blood-shot and have a livid tinge, and so has all the rest of the face. In some cases, if the attack be very severe, there is a difficulty of swallowing at the very first, perhaps an inability from the very first; but when the disease terminates fatally,

there is, of course, an inability at last to swallow. If the disease does not terminate by instant death, it may last for a few minutes, or for some hours, and even days. Persons have recovered after lying in this insensible state for three days. I believe that when the state is not genuine apoplexy, but a symptom of what is called mere nervous derangement, in hysterical women it may last any length of time, and persons will then recover; but generally if it be genuine apoplexy, persons seldom recover, if the insensible state continue beyond three days. The disease does not necessarily consist of an *entire* loss of sense and motion, for there is a degree of both in most cases which do not terminate fatally immediately, even till just before death.

Respiration is considered by some a voluntary process altogether. Although it continues during sleep in the natural state, yet it is no more than any voluntary action. If you tickle a person when asleep, he moves himself directly, to avoid the sensation, and therefore it is no argument that breathing is not voluntary because it continues during sleep. Almost all voluntary motion may be performed more or less, if no great effort be required. However, respiration continues, whether you choose to consider it voluntary or not, and the ability of a person to swallow is, of course, another instance of voluntary motion. Persons, however, will frequently do more than this; if you pinch them and make them uneasy, they will groan. You find the heat generally increased, especially of the head, and it is not unusual to see clammy sweats. These almost always occur, however, during the last period of the disease. Although the affection comes on generally in this sudden manner, yet it is occasionally preceded for a length of time by drowsiness. You see persons fall asleep in company where they will snore away, even months before the fit. It is common for the attack to be preceded by head ache, by a throbbing, a sense of tension and weight of the head. Many complain previously of dimness of sight and double vision, giddiness and vertigo, and you may frequently observe the eyes to be red before a paroxysm. Some have flashes of light like stars before their eyes, deafness, tinnitus, together with dreaming, night-mare, and epistaxis. It is not uncommon for persons, before they become apoplectic, to have numbness of the fingers, or one finger, or some part of the body. Sometimes, besides this, there is tingling; in other instances, slight twitches of the muscles, and occasionally stammering. It is very common for impairment of the memory to occur, and more or less depression of the spirits. You may very easily conceive that the circumstances which occasion apoplexy will in a slight degree cause simple headache, or throbbing of the head, or double vision, or any of the other symptoms. Stammering, an inability to use the muscles of articulation properly, and a loss of memory, will also arise from a fulness of the head, and such as in greater intensity will produce apoplexy.

Sometimes, before the attack, persons will have hemiplegia for a longer or shorter time, so that hemiplegia frequently terminates in apoplexy. Independently of these symptoms, the invasion of the dis-

case is sometimes very slow : instead of persons being knocked down, whether they have these symptoms or not, the disease will come on slowly, so that from being sleepy they at last become apoplectic quite insensibly. There is another form in which the disease comes on, and that is, where it begins with syncope, from which the patient frequently recovers for a longer or a shorter time, till he afterwards becomes apoplectic. You will find this particularly mentioned by Dr. ABERCROMBIE. Before the attack of apoplexy, there is sudden pain of the head—a sharp, cutting, severe pain ; but instead of the face being flushed, full, swollen, or livid, it is pale. Perhaps there is a little delirium, perhaps wandering ; but a sudden pain occurs in the head, the face is pale, the patient feels cold and faint, and there is also vomiting and purging. Now, after this attack of syncope, the patient gets up and may walk about ; but in a few minutes, sometimes for a few hours, and sometimes not for a few days—but after this, whatever the interval may be—gradually coma and apoplexy take place ; the body then acquires its natural warmth, perhaps is as hot as in common apoplexy ; the pulse is no longer faint, but becomes full and slow, and the ordinary state of apoplexy is established. This form of the disease is almost always fatal, and from this circumstance. A rupture takes place within the brain, not producing immediate effusion in most cases, but sufficient to cause violent pain, sufficient to produce such an influence on the heart as to impair its influence considerably, so that syncope takes place ; and then, after this symptomatic syncope, gradually blood oozes from the vessels in different parts of the brain, till at last pressure takes place, and you have common apoplexy. After this disease, there is almost always found rupture and extravasation. When the disease has begun, if it do not destroy life, the symptoms gradually recede, till they disappear altogether ; consciousness, perception, a knowledge of his own existence, and an observation of the external world, return, and the power of volition is directed to the voluntary muscles. Sometimes, however, there is not a perfect return ; power, consciousness, and perception, return, excepting in one part of the body, so that one-half of the body very frequently, after the disease, remains motionless, without being at all subject to the volition of the patient ; and sometimes, in addition to this loss of power over half the body, there is a loss of sense there, at least in regard to touch. The surface of one-half of the body frequently remains insensible ; there is a paralysis of sense, as well as of motion, and this state may gradually subside, or only to a certain point, or it may never be recovered from, and in that state a person may live for an indefinite time. Frequently, too, after these attacks, their mental powers are weakened ; patients frequently are never the men mentally that they were before, never have the same power of attention, the same memory. If the affection, however, gradually destroy the patient, the power of sensation and volition does not return, and deglutition is lost. The power of deglutition and the power of respiration remain, unless the disease kill the patient directly ; but if the patient remain insensible, the power over the muscles of deglutition is gradually lost ; he

swallows worse and worse, till he cannot swallow at all; the pulse becomes weaker and weaker, the body cooler, respiration quicker, and at length irregular; but the heart will beat a few strokes, after you have witnessed the very last inspiration. You will sometimes see an attack of this disease, that the pupil is not dilated, but, on the other hand, extremely contracted, and there is no worse sign in apoplexy than this.

I recollect a German, who had the largest pupil I ever saw; in fact, the iris appeared to be nothing more than a thread in the form of a circle. I have frequently looked at him with astonishment; the iris never appeared larger than a thread in diameter, forming a very fine ring. He took half an ounce of pulverised opium. Some hours after taking the opium, he fell into a state of coma. It is a striking circumstance that coma did not come on for a considerable time. He lay upon the bed, and we of course proposed giving him emetics; but he, being as much himself as any one in the room, declared we should not give him any thing. We got a stomach-pump, finding he would not swallow what was reasonable, and with great difficulty we passed it down, and emptied the stomach, and then poured in so many wash-hand basons of water in succession that at last the water came out as clear as it went in; so that we completely evacuated the stomach. After all this, apoplexy came on. He became senseless, his pulse slow, his face swollen, his lips livid, and his eyes suffused, and there was also stertorous breathing.

Of course we opened the jugular vein, and a vein in the arm, bled him freely, and dashed pails of cold water on him, but it was all of no use. He was sensible, and the iris was contracted so that the pupil was reduced to the size of a pin's point: it would have been difficult to pass any thing of a larger diameter than a pin through the iris. I need scarcely say he died.

I believe that when apoplexy has come on from opium, and perhaps from other narcotics, a contraction of the pupil has been observed; but when apoplexy is of the ordinary kind, and has not arisen from narcotics, this symptom is mentioned by authors as being almost always a fatal sign. I never saw a patient recover in whom the pupil was so contracted, though I have of course seen them recover where it was dilated. Whatever danger there may be from other symptoms, you ought, if you see the pupil contracted, to give a guarded prognosis. It is mentioned by many authors that this state of the pupil is unfavourable, and, so far as I have made observation myself, I think that the statement is true. When apoplexy is produced by external mechanical causes in injuries of the head, notwithstanding the comatose state, the pupils are obedient to light and darkness, following the introduction or exclusion of the light just as in health. Sir B. BRODIE, mentions having seen dilatation of the pupil alternate with contraction; at one time the pupils were extremely dilated, and at another extremely contracted, and this alternation had been repeated several times, that he has seen dilatation cease when venesection was practised, and then, when the effect was gone off, the pupils were dilated again. When a bone compressing the brain was

elevated, the dilation ceased. Dr. HENNEN, in his *Military Surgery*, states that he has seen the pupil dilated when light was admitted, and contracted when it was removed; and, Sir B. BRONIE mentions seeing each eye in an opposite state—that while there was a morbid dilatation of one eye, there was a morbid contraction of the other; and sometimes he has observed the pupil of one eye only to be dilated. These are irregular circumstances, and, you may meet with one or all of them.

In the midst of a fit of apoplexy you will sometimes see also hemiplegia—in fact, double hemiplegia; but you find the hemiplegia existing more on one side than on the other. Although the patient is motionless on both sides, you will observe that the muscles of the face will be violently drawn to one side, showing that the apoplexy is not equal—that one side is able to draw the other towards it. Sometimes in this disease there are convulsions. I should presume that in these cases there was not only compression of the brain, but more or less laceration, or an inflammatory state;—there must be some cause of excitement, besides the compression, producing apoplexy; something injuring one portion of the brain so much that there shall be convulsions, and these convulsions are sometimes seen to affect only one-half of the body. The blood that you take away from the temporal artery in this disease is very often as dark as venous blood; and the blood you take from the veins is very often buffy, and even cupped. The state is very often one of a decidedly inflammatory nature.

MORBID APPEARANCES.

I have seen it stated that a person could not have died of apoplexy, because nothing unusual was found in the head after death; but I have opened many persons who have died of apoplexy, and have found nothing that would have led me to suppose they had been apoplectic. There most probably had been extreme fulness of the vessels during life, and after death the fulness had completely gone off. Sometimes there has been a retraction of the vessels, and sometimes copious blood-letting has been had recourse to; but the brain has been so compressed that the removal of blood was not sufficient to reinstate the brain in its former powers. You will indeed frequently find after this disease that the fulness of the face, the great turgescence of all parts of the face, will go off, if not entirely, yet to a great degree, and you must suppose, therefore, that the same thing may occur internally. I recollect a patient who died of this disease. He was lying in the dead-house; but the veins looked so full and tempting, that I begged some of them might be opened, and the subject bled freely to a pint; and, although the face was livid and swollen, the lividity went down, and the face recovered its former size. You may therefore presume that a similar change may take place in the branches of the internal carotids to that which occurs in the branches of the external carotids. In the second place, you may find great fulness of the vessels; the sinuses are generally filled with blood, and the vessels of the pia-mater are exceedingly distended, so that they

present and obvious an decided turgescence. Thirdly, you will sometimes find an effusion of serum *in* or *upon* the brain. Sometimes there is simply this, but sometimes it is united with a general fulness of the vessels. It is said that, if the disease arise after ischuria renalis, serum is generally found; but I recollect opening one patient who died of apoplexy after the suppression of urine—and in that person there was neither a fulness of the vessels, nor was there effused serum in or upon the brain. In the fourth place, we sometimes find extravasation of blood, and this may be upon the surface or in the substance; and, in the latter case, I believe it is found more frequently than not near the ventricle. It is seldom seen in the ventricle alone; if you find blood effused in the ventricle, it generally arises from its having been effused into the substance of the brain near the ventricle, and projecting through the cerebral substance, so as to make its way into this cavity. The blood may be effused of course in any part of the brain—in the cerebrum, in the cerebellum, and even in the pons varolii, so as to lacerate it, and if it be effused near the ventricle, it frequently makes its way into it. It is under these circumstances, for the most part, that you find blood in the ventricles; it has made its way from a neighbouring part in the substance of the brain.

ANDRAL has made a large number of dissections, and states, that the blood almost finds its way to the ventricles by rupture. Of 386 cerebral hæmorrhages read of by him, he finds that 202 took place in the substance of the hemispheres, 61 in the corpora striata, and 35 in the thalami nervorum opticozum; so that the hemispheres are by far most frequently the seat of hæmorrhage. The new cavities formed by the extravasation of blood may be of all sizes, varying from the size of a small pea to that of a walnut, and much indeed beyond that. There is a great variety also in the number of these effusions; sometimes you will find only one, in other instances you may find two, and in some cases you may find several. The blood which is effused at first looks like currant-jelly with a bloody reddish fluid around it: it is about that consistence. In about a fortnight this clot becomes much firmer, and at length it becomes soft, and has merely a reddish fluid around it. It is sometimes completely absorbed, so that a cavity is left, and that is called an *apoplectic cell*. This cavity is sometimes lined by a new serous membrane, sometimes it contains clear fluid, and occasionally it is perfectly empty, and may remain so for a great length of time, and, for what I know, for life. It is said that a coagulum may remain for a long time in the brain without much mischief; but, where it does exist, it generally gives rise to paralysis. If it be absorbed before that process is completed, there are filaments seen sometimes spreading in all directions, and occasionally the filaments contract adhesions. Adhesions are formed, and the part contracts; an appearance of cicatrization takes place, and the spot becomes much firmer than before—generally it is yellowish, and sometimes darkish. These observations are only made from inspecting a large number of cases. On opening different cases at different times, it is seen, in the first instance, that there is only blood of

the consistence of currant-jelly; still later, it is found to be much firmer; sometimes it is completely absorbed. There may be an empty cyst, or the cyst may contain serous fluid: but sometimes the red particles are absorbed, and the fibrin only is left; this becomes filamentous, and the whole part becomes firmer than it should be. The best representation of these things which I know is that by Cruveilhier.

Nature makes an attempt to restore the part, just as she would in any other situation in the body. Dr. BAILLIE's plate viii., fas. x., fig. 1, represents the substance of the brain into which there has been an effusion of blood. Fig. 2 represents a cavity in which a clot had formerly existed, and which, he says, was filled with serous fluid when he opened it. When blood has been effused into the substance of the brain, and you examine it soon after the occurrence, of course the appearances are the same as where the blood has been effused any where else. Sometimes the blood, it is said, is not absorbed, but remains where it was effused; and both in that case and where apoplectic cells have been formed, it is asserted that, in some few instances, no symptoms have arisen.

You may have an opportunity of examining the process of absorption, when the clot has been absorbed, by opening a number of cases, and you find, in the first place, that the serum becomes absorbed, that the clot becomes firmer and paler, and then, frequently, a number of filaments are produced, running from the cells of the cavity. These filaments at first are loosely attached; they then become firmer; at length sometimes the cavity will shrink; all the parts will contract, and become hard together, so that a cicatrix is produced, and this cicatrix will become very firm. Sometimes there is no cell left, the blood is entirely absorbed, a cicatrix is produced, the sides of the cavity approach together, the filaments also are contracted, I suppose, and the whole becomes quite firm; and, under these circumstances, there is generally a change of colour—sometimes green, sometimes yellow, and sometimes purplish. Now, when there is a clot effused in the brain, it is generally found that the substance of the brain around it is softened.

Dr. BAILLIE mentioned that if blood were effused into the substance of the brain, the cerebral substance around the clot is very frequently softened—it is so injured that it becomes soft. Sometimes, however, there can be no doubt that a clot is the result of softening. I am quite satisfied of this from my own observation; for I have seen a person with a pain in his head gradually lose his memory, even have cerebral affection, then suddenly become apoplectic and die; and, on examination, I have seen a portion of his brain softened like pap, and in the midst of it an effusion of blood. If the cerebral substance of the brain be much softened, the large vessels will at last give way and let out the blood, so that you may have a softening of the brain through the presence of blood injecting the surrounding substance; and I feel satisfied you may have a clot of blood through the vessels becoming softened, and then you have more or less apoplexy. At St. Thomas's Hospital, I opened a man who came in with hemiplegia, which is much the same thing in point of pathology. He

came in with paralysis of the left side—the arm, the leg, and the whole of the side, were paralyzed. In the posterior part of the right thalamus nervi optici there was found a cavity, the brain was evidently injured, and the part looked just like an ulcer in a mucous membrane. I presume that in this cavity blood was effused, which coagulated, and was then partly absorbed. It of course produced a destruction of the cerebral substance around it, and the blood being partly absorbed, gave rise to the dark colour. I have always seen the injury on the opposite side to that on which the paralysis occurred. Sometimes, besides congestion and effusion, you will find marks of more or less inflammation, you will see the membranes thicker than they should be, looking as if chronic inflammation had been going on.

In the man, a piece of whose brain is now going round, the arachnoid on the surface of the brain was quite opaque, and there was also a considerable effusion of serum; but then he died from an inflammatory attack of the brain. His head suddenly became very hot, he became stupid, and then effusion took place into the substance of the brain, and likewise into the ventricle. This was a subsequent process, and is a very common mode in which paralytic persons die. There is a disposition to disease. In most chronic diseases effusion takes place, and there being no strength of constitution, the patients die. They sink from inflammation within. There is such weakness attending it that you can do very little for them. Now this laceration, this rupture of the vessels and effusion of blood, very generally takes place from some disease of the vessels themselves.

Now and then the vessels within the head have been found aneurismal; very frequently, too, they are found more or less ossified; sometimes they become calcareous, more or less earthy, and very brittle, and they are afterwards found in this state. But it is said that even the veins without the head are occasionally found diseased in a similar way. The vessels are so brittle that they will crack, and apoplexy takes place. Now and then very large vessels in the head have been found ruptured, even a large artery; generally, however, it is the small vessels that suffer, but even the sinuses have been found in that state. A practitioner informed me that he was once sent for to a man who had been carrying a very heavy load, and he found the longitudinal sinus ruptured. We must suppose there was a disposition, general or local, to some sort of disease. Usually, they are the small vessels that give way, and next to them come the arteries: the sinuses, certainly, are more rarely affected than either. The hæmorrhage, it is said, is sometimes found between the dura-mater, so that, on removing the skin, the hæmorrhage has been seen there. This is by no means uncommon after external violence; but, when it does not arise from that source, it happens from a bone being carious, and the vessel thus becoming injured. It is said that in cases where apoplexy follows the suppression of urine a great quantity of fluid has been found in the brain, and even of a urinous character.

It is stated that an old woman died at the Westminster Hospital who had been much addicted to drinking gin; she died with her

belly full of it, and there was a distinct smell of gin in the ventricles of the brain. It is also said that tincture of assafetida has found its way to the ventricles, or that there has been a strong smell of it in persons who have died apoplectic. Certainly, when persons have been unable to make water, and the urine has been retained, there can be no doubt that they have occasionally vomited urinous fluid, and even spat a fluid strongly smelling of urine. If this be the case, it is possible that such an occurrence may take place in the ventricles of the brain; but I can only say that I never saw but one instance of apoplexy from ischuria, and in that case there was no effusion of any sort into the brain.

LECTURE LV.

APOPLEXY.

THE predisposition to this disease may be constitutional, or even hereditary. Men who have a large thick head are those that are usually affected, because that is not the size for intellect. Those men with short necks, circular breasts, and not very tall, are certainly very liable to apoplexy, and this is, of course, a constitutional make; and if it happen to be hereditary also, you may say that the predisposition to apoplexy may be hereditary as well as constitutional. Indolence of body and mind predispose to it. Persons who satisfy themselves with little exercise and little mental exertion, have more or less congestion, and at last become apoplectic.

If persons sleep too much, they become more or less plethoric, and liable to become apoplectic. Too rich and too abundant food will have the same effect. Hypertrophy of the brain tends to produce this disease. An over-nourishment of the brain is likely to dispose to congestion, and to an irregularity of the circulation. I once saw an instance of this kind. It occurred in a young gentleman eleven years of age, who had a head bigger than most men—in fact, it was too large for his body. He was remarkably clever. He was seized one day with hemiplegia, and had double vision, and the attack was soon followed by coma. Previously he had had double vision, and pain of the opposite side to that in which hæmorrhage afterwards took place.

After death, the only thing I could discover was congestion in the brain, and I fancied that the corpus callosum was softened. A few minute tubercles were found in the arachnoid, but nothing to cause apoplexy. His brain was far larger than it ought to have been in a child of his age. The brains of very few adults attain so large a size. You will find a case in the *Dictionnaire des Sciences Medicales*, under the article "Rare Cases," of a German who died apoplectic at the age of thirty. He had very powerful mental faculties. His head began to grow at seven years of age, and at thirty it was twenty-seven inches five lines in circumference; the rest of his body was not proportionate, and, like my patient, he died apoplectic.

MORGAGNI and others have spoken of hypertrophy of the brain. From the excessive nourishment the convolutions are very indistinct, and from the excessive substance of the brain growing out in all directions, and filling up the cavity, the ventricles are very small. The brain altogether, when you open the head, looks too large for the cranium, and the substance too is very firm. In the disease called "hypertrophy of the lungs," when you open the chest, they are glad to make their escape, to come beyond the limits of the incisions; and so, in opening the brain in these cases, it looks as if it were too large. Sometimes this hypertrophy is only partial, sometimes the whole is too partial, sometimes the whole is too large, and sometimes the spinal marrow is also affected in this disease. There can be no doubt that cases of this description, of which I have seen one, predispose to apoplexy. More persons die apoplectic who have passed the meridian of life than not, with the exception of children, who die in consequence of effusion; yet apoplexy does occur every day in children. There is an inflammatory state of the head, which causes more or less effusion; but apoplexy from a congestion of blood, effusion through diseased vessels, generally takes place after the middle period of life—more frequently than not. It occasionally, of course, takes place from the sudden cessation of a discharge. You will have it after the menses have ceased, and sometimes from amenorrhœa, but not so frequently as might be imagined. Apoplexy is the result of old age sometimes, and after the cessation of the menses women are getting old; but the utmost you generally see, when women do not menstruate regularly, is headache and giddiness. The suppression of hæmorrhoidal discharge has produced apoplexy, and the cessation of a long continued cutaneous eruption will do the same, and likewise metastasis, on the cessation of gout, and even, it is said, the removal of tumors. Apoplexy is strongly predisposed to by organic disease in the head, in the brain, or in the membranes, or on the inner table of the bones, or the whole substance of the bones—the pericranium. When there is organic disease without the head, whether of the bones, or the pericranium, or the inner tables, or the dura-mater, or the head itself; then a person, from the excitement going on there, is very much disposed to this disease. Anxiety of mind has a tendency to produce it.

Many of these things, you will perceive, act by merely giving rise to excessive fullness, and if there happen to be in the individual who is exposed to these predisposing causes any organic disease of the vessels or membranes of the brain, you may see how easily the excessive load of blood there may occasion apoplexy. When there is organic disease of the vessels, you will immediately perceive that it does not require a full habit, full living, a short head and a thick neck to induce the disease. If any of the vessels be diseased, if a person be thin and tall, he will be liable to apoplexy. It is so frequently the result of blood effused through the vessels, that you must expect to see the disease in thin people, not so often as in fat persons certainly, but very frequently. As it may arise without any fullness of the vessels whatever, but simply from one vessel, or a set

of vessels, being brittle or softened, or ulcerated, or labouring under some other disease ; and as it will arise from mere fulness of all the vessels, the vessels themselves being sound, but suffering more or less congestion ; you therefore may expect apoplexy in two very opposite descriptions of people, and when it arises from the state of the vessels, none of these other predisposing causes are required. A person may live the most abstemious life possible, and yet the vessels will let out the blood, and the person must die apoplectic. The exciting causes of the disease, may be equally influential in producing it, whether there is mere fulness, or organic disease of the vessels.

If there be previously present great congestion of blood, without disease of the vessels, stooping will increase it to such a degree that apoplexy will occur. Supposing there be brittleness of the vessels, stooping will have the same effect as if there be great congestion. You see that a common exciting cause of the disease for the most part will produce apoplexy, whether it may arise from an over-fulness simply, or disease of the vessels ; because stooping, for example, is a violent effort, and will throw a great quantity of blood on the head, and will operate by forcing the blood through, or opening the vessels. Exposure to a very great fire, or being in a very close apartment, are causes of the disease, and so likewise are the rays of the sun— isolation. Intoxication, too, will frequently produce the same effect. When persons are exposed to intense cold, they become exceedingly heavy, they are disposed to sleep, and it requires a strong exertion on their part to prevent them from going to sleep. When they travel over regions of snow, and have nearly perished from cold, if they give way to sleep, and lie down, they are sure to die. It is said by PORTAL, that he found a rupture of a vessel in a person who had died in this state. It would appear that others had observed that cold killed merely by numbness, did not kill by producing pressure, but by simply benumbing, taking away all excitement from every part of the body, and the brain among the rest.

Dr. KELLY, in the first volume of the Edinburgh Medico-Chirurgical Transactions, says that he found serous effusions, and great congestion of the head, in two persons who were destroyed by cold. Tight bandages have frequently produced apoplexy, or threatened to do so—that is, the person would have had it if they had not been loosed. Sir B. BRODIE says, that in a person who was hanged he saw effusion of blood. Dr. MONRO found in two cases congestion of the scalp and congestion within. But this is not always the case : persons who are hung do not die of apoplexy, but a want of breath. Occasionally it has happened that apoplexy has been produced—not only extreme congestion, but Sir B. C. BRODIE found rupture. Sometimes after drowning, great cerebral congestion has been found ; but there are some who deny the truth of this. Drs. GOOD, WINSLOW, and CURRIE, say that, after drowning, no congestion was found. MORAGNI says, that, after hanging, he found no congestion. De HAEN says, that, after hanging and drowning, nothing was to be found ; and so says Dr. KELLY.

People, from drowning, hanging, suffocation, and cold, do not die

necessarily of apoplexy ; there *may* be apoplexy in addition, but not necessarily so. I presume that a great deal will depend on the strength of the vessels ; if the vessels be very strong, they will not give way, they will not allow great congestion to take place ; but if, on the other hand, they be weak, they will allow it ; or, if they be diseased, they will allow the blood to be effused. Anger has sometimes destroyed life by apoplexy. Ischuria renalis has been also found to produce apoplexy. Narcotics will give rise to this disease ; they produce various disturbances of the brain, sometimes delirium, sometimes more or less phrenitis, and sometimes apoplexy. They cause apoplexy, by inducing compression where there is great congestion of the head ; but, independently of producing this compression of the vessels, they do harm by their peculiar narcotic power—by destroying the vital powers of the body, just as cold will produce death independently of congestion. Among the exciting causes of the disease, you find mentioned, lying on a mill-stone, will produce death, it is by the centripetal force, driving all the blood to the head, so that apoplexy is induced.

Inflammation and suppuration of the brain frequently produce apoplexy. The inflammation goes on to such a pitch that apoplexy at last ensues from the congestion. Suppuration within the brain causes such a collection of pus, as to compress it, and the compression may produce apoplexy. The pressure occasioned by a depressed bone likewise gives rise to apoplexy. You continually see persons brought to the hospital, after an injury inflicted on the head, perfectly comatose, in a state of apoplexy, and, when the bone is raised, they recover. Some, however, deny that the brain is ever compressed. They say that the cavity of the cranium must always be full, that if you compress the veins, so that the blood cannot escape, so much less blood goes up to the arteries ; or, if you quicken the pulse and increase the usual quantity in the arteries, the veins contain proportionately less. Dr. KELLY, who takes this side of the question, says, that he bled animals to death, and he still found a great quantity of blood in the head, so that the cavity must be filled. If you press more in one way, more comes out the other ; or, if you endeavour to withdraw the blood, you cannot, because the cavity must be filled, and therefore you can only take away a certain portion.

I should suppose that there may be more blood in the head at one time than at another ; the cranium may be full, but I should think there may be different degrees of packing. A portmanteau may be filled, but it may be packed tight or packed loose ; and, when you see that, if a person stoops, he becomes stupid and sleepy and giddy, and all the vessels of the external part of the head are distended with blood, and you see him suffering something which, in a higher degree, would be apoplexy, I cannot help thinking that there is more blood in the head at one time than at another. I should conceive that the cerebral substance may be pressed up in a different degree. There must be a certain quantity of blood in the brain resisting the entrance of more ; but I should think that more might be *forced* upon the brain, so as to compress the cerebral substance, and bring

it into a smaller bulk. When the face is red and full, all the external veins turgid, and you see a person labouring under evident external plethora of the head, and at the same time he has signs of apoplexy, if you open him, you are almost sure to find the internal vessels of the head all in a state of congestion; and hence, to all appearance, there is far more blood in the head at one time than at another. If a person tie his cravat tight, he instantly has the external veins of his face filled, his eyes become red, at the same time he feels stupid and giddy, and if he do not loosen it soon, he is very likely to drop down. Some have denied that there can be congestion of blood in the head from this circumstance, namely, that, after hanging and drowning, there has frequently no apoplexy been observed, no congestion of blood, and no effusion; but, I presume, this will all depend on the strength of the vessels, or the vessels not being diseased. If they be in this healthy condition, I presume that they will resist an overload of blood, and not give way—that they will not allow either rupture or congestion of blood.

It is well known that persons with hypertrophy of the left ventricle of the heart frequently become apoplectic, there being such a quantity of blood forced violently towards the brain. But it is said, that we every day see such a violent quantity of blood driven up to the head, and yet no apoplexy is produced. I presume that the reason is, the vessels are so strong that they will not become over-distended—they will not give way; whereas, in other persons, they are diseased or feeble, and do give way, so that you have congestion. I cannot see the force of the argument that has been adduced. **SERRES** pretends that actual compression does not produce apoplexy. He trephined several dogs, cut out a piece of the cranium, and then wounded the brain through the aperture, producing effusion of blood, and yet, he says, apoplexy did not occur. Now, I presume, the reason there was no apoplexy was simply this, if we can depend upon his statements, that, if an opening were made in the cranium, the pressure would be without and not within, because the opening would allow the contents to be pushed forward. But, he says, after he had cut out a piece of bone, he took a cork and corked it up, so as to press on the brain, and no apoplexy was produced. What no effect produced by putting a piece of cork on the brain through a trephined opening! There can be no doubt that the brain will bear pressure without much effect being produced, provided it take place gradually.

There is a case recorded by Dr. **HEBERDEN** of a man in whose head no less than eight ounces of water were found, and yet he had only been deaf. He died suddenly at last. Of course these eight ounces could not have been formed suddenly. Before death he had had one or two epileptic fits, but in the intervals he had all his senses and faculties. This was an instance of gradual compression: sudden pressure caused by a less quantity would, I presume, have produced apoplexy. Dr. **MARSHALL** mentions the case of a maniac who, a few hours before death, had become rational, and he found rather more than a pint of serum in and upon the brain, shewing what may

be borne, if the part be accustomed to it gradually. When there is any tumor within the head, it will act, not merely, I presume, by being a source of occasional irritation, but by occupying so much space in the cranium, that the least additional presence of blood upon the brain is likely to produce effects which would not be produced if the tumor were not there. If the cranium, for example, be diminished at all by the presence of a foreign body, of course it can less bear any additional quantity of blood which may be forced up, and therefore tumors may act in two ways—first, by exciting a sudden determination of blood to the head—and, secondly, by filling up the cavity of the cranium so much, that even a little additional flow of blood cannot be borne—there is no room for it. You will see sometimes cases of persons who have died with a tumor within the head, having produced only occasional paralysis, or occasional loss of motion—a kind of stupor. You may say there was no organic disease, because the symptoms were only occasional. That I know has occurred, and, I presume, from this circumstance, that the tumor has gradually accustomed the part to its presence, and when apoplexy and paralysis have occurred from time to time, they have occurred, not from the tumor being there exactly, but from an additional flow of blood which could not be borne.

The muscles are not in fault in apoplexy, although a patient cannot move them, any more than the cords of the nerves. The fault is in the head; and, therefore, when galvanism is applied to the muscles, it acts upon them as it did before. Dr. WILSON PHILIP says, that he has found that the muscles are as irritable in health. They are all ready to perform their functions. This is not more than you would suppose *a priori*.

TREATMENT.

Supposing the disease arises from the depression of a piece of bone, no medicine in the world can remove the symptoms while the bone remains in that position. In all probability it would be a proper practice to attempt the elevation of the bone. The pulse has sometimes been quite imperceptible while the bone was depressing the brain, but immediately on the bone being elevated it has become strong. Sir B. C. BRODIE mentions such a case. He says the pulse was only 40 while the bone was pressing on the brain, but on its elevation it instantly rose to 60.

If we know that the apoplexy has arisen from any thing taken into the stomach, we should adopt proper steps to evacuate that organ by emetics, or the stomach-pump. Should it be an ordinary case of apoplexy, the first thing, is to raise the person's head and shoulders, to loosen every thing about his neck, and to open a vein in the arm, or the jugular vein. The quantity of blood to be withdrawn, must depend on many circumstances. The next thing should be to give a full dose of purgative medicine; a drop or two of croton oil, or a scruple of calomel. Perhaps it would be well to give a dose of calomel, whether you add any thing to it or not, because early ptyalism after apoplexy often appears useful. There is effusion left, for which

ptyalism is apparently useful, and it is well to lay the foundation for it by beginning with calomel first as a purgative. As it is best to open the bowels very speedily, a strong purgative injection should next be given. The state of the brain causes the heart to be more or less torpid, and likewise the alimentary canal, giving rise to a slow pulse and torpidity of the bowels, and a clyster of oil of turpentine (two or three ounces) answers very well. Whether it is objectionable on account of stimulating the brain, and producing vertigo, I do not know, but I am not aware that I ever saw harm arise from it. A good clyster is one of the best things—salt, or an infusion of extract of colocynth, answers very well, and may be exhibited in gruel or barley water.

It is very useful to apply water to the head, much more so than a blister. You generally find the head hot, and ice applied in a bladder is exceedingly serviceable. The patient should be kept very low, and sinapisms applied to the feet or legs may be useful. It would be well to continue the calomel till the mouth is tender, and that on two accounts; first, in this disease the head is frequently found hot—it is so often an inflammatory disease; and, secondly, you frequently find the blood buffed and cupped; and I may say, in the third place, we so often find paralysis occurring, and that appears to be the result of effusion, the excess of which should be absorbed. Calomel may be useful in that respect.

Great care, however, must be taken not to carry this too far; for there can be no question that persons will sink after a time, entirely from these measures being pushed beyond what is proper. Although you starve the patient the first few days, you must ultimately give him support. I am sure that some persons have had apoplexy from having been bled too frequently even locally, and being deprived too long of food. It is necessary to get the mouth sore, and then apply a blister behind the ears and over the head, and after a time, if you please, over the whole of the head; but great care must be taken not to evacuate too much.

There was formerly a distinction drawn between *serous* apoplexy and *sanguineous* apoplexy—serous where it arose from serum effused, and sanguineous where there was great congestion of the vessels, or rupture. Now taking this distinction literally, it is altogether absurd, which will immediately appear when you consider the indications of cure. It was supposed that when there was sanguineous apoplexy, you were to bleed, purge, and starve; and when it was serous, you were to support the patient well, because it was a case of apoplexy from the oozing of water. That was absurd, because you may have serum where the inflammation is more or less severe; you may have serum in a case where it is quite proper to bleed, purge, starve, and apply cold. Common inflammation of the arachnoid membrane will produce it, whether it be active or not; and in the next place, where you have effusion of serum you have continually great congestion of blood. You may have it in both cases; and nothing is more common, when you find a vessel ruptured in the head, than to find serum effused upon the brain and outside the head. Serum in

this case, as in its effusion in all other parts of the body, may be the result of weakness, the result of congestion, or the result of inflammation; and therefore you see that no treatment of apoplexy can be founded on the absence or presence of serum, even could we tell it beforehand any more than an indication of practice can be drawn from serum in other parts.

You may have serum in peritonitis, and you may have to treat the case as active peritonitis, or you may have to support the patient well and give stimuli; and the same remark applies to the brain. Hence this distinction is not founded on pathological principles. Where a person looks full of blood, we must treat him by depletion; but where he looks 'pale, watery, leucophlegmatic, and has a weak pulse, as if the effusion were serum, then you should not employ active depleting measures, but be exceedingly careful, and perhaps you may have to support him. There is a distinction to be drawn; but it is not because there is serum or no serum, but because in the one case there is a state of fulness and congestion, and in the other a state of debility. It is necessary, of course, to consider the powers of your patient. In some of these cases you find the patient looks as though he would be dropsical in the head, and every other part of the body is pale and white, and if an effusion of serum took place, it would be more from weakness than any thing else; yet in such persons as these, after death, you continually find congestion, and more or less organic disease giving rise to the effusion of serum. After the fit is over, and the patient has recovered, it is necessary to pursue the general treatment which you adopted during the fit, only on a more moderate scale.

If it be necessary to bleed copiously, to treat the case very antiphlogistically, or in a very depleting mode, of course the patient should be very abstemious in his diet, should keep an open state of his bowels, and use all those measures which are calculated to prevent a phlogistic condition from occurring, but in great moderation. If a patient have not borne evacuation during the disease, of course a more generous diet must be allowed; you need not be so strict. Dr. BABINGTON became convinced that, after a time, many persons were made to suffer exceedingly from having antiphlogistic measures carried too far, not only from the very outset, but afterwards. He says that he found great advantage, after a time, from the moderate exhibition of tonics; however, there is one kind of apoplexy in which it is necessary to give a particular remedy, or you will be sure to lose your patient, and that is in apoplexy arising from the suppression of urine.

I believe in that species of the affection evacuants do little or no good, but that cantharides employed both internally and externally are the proper remedy. It is well to resort to them always, and give a grain or two three times a day. I should not recommend the tincture, for I believe it is uncertain in its operation. I have given two or three drachms two or three times a day without any effect; and sometimes I have given the same quantity and found great irritation. I think there is not a more certain remedy than the powder. If you give a grain, or two grains, every night, or night and morning, you are almost sure to make the bladder perform its functions. The only

experience I have of cantharides internally has been in cases of gleet ; but it has been unsatisfactory on account of the people being outdoor patients, so that I had no great controul over them, and therefore I cannot speak as to its powers. I have no experience of it in apoplexy from ischuria. I applied it in one case, but the patient died in twelve hours, so that there was no time for it to do him good ; but a gentleman told me he had seen it successfully exhibited in two cases. In the first case Sir ASTLEY COOPER suggested its employment : and although an unfavourable prognosis had been given, the patient recovered. The second case shortly afterwards fell under the same gentleman's care, and he adopted the same remedy with equal success. It does appear, that in that kind of apoplexy stimulation of the urinary organs is the proper remedy. I must here draw your attention to a fact perfectly analogous to that which I mentioned respecting the hydrocephalus of children. I stated that children were occasionally subject to hydrocephalus from mere excitement, that their pupils became dilated, that they would fall into a state of coma and perhaps be convulsed, and that if you bled them you would destroy life ; whereas, if you gave ammonia and beef tea, and supported the child well, it generally recovered.

I mentioned that there was a similar state in delirium, called " delirium tremens," and which, in the greater number of cases, is not at all inflammatory, and must be treated by opium, and not by bleeding. Now adults will sometimes fall into a state of apoplexy from downright exhaustion, called *apoplexia exsanguinea*. Dr. ABERCROMBIE says that he has seen adults comatose and collapsed, the pulse not full, the lips not purple, and the lips not turgid. You will recollect that in apoplexy the face is turgid, and more or less livid ; but in this form of the disease the face is collapsed and pale ; and notwithstanding the pulse may be full, Dr. ABERCROMBIE states, that in this condition the diagnosis is to be drawn from the paleness of the face. He says that he has seen it arise from neglected diarrhoea. Starvation might probably sometimes have the same effect. He says that he has seen the state in an old lady amount to a loss of memory and squinting ; and he mentions one case in which a person was regularly deaf, paralysed in one sense when in the erect posture—when less blood goes to the brain and more freely escapes from it ; whereas as soon as the patient lay down, the deafness ceased and the face became flushed. Now it is very necessary, in looking at a case of apoplexy, to ascertain whether it is of the kind you see in nineteen cases out of twenty, or whether it arises from a state of exhaustion of the brain ; and if it be a case of the latter description, if the face be pale and collapsed, you have reason to believe that the patient has had causes of debility applied, and then certainly it would be necessary to give ammonia in preference to wine, because wine might induce perhaps too great a stimulation of the brain, which would last afterwards ; the stimulus of ammonia is very evanescent. There will, of course, occur cases in which you will be much distressed, being unable to make up your mind as to what ought to be done. The same circumstance occurs in the treatment of inflammation. You will recollect I stated, that at

last you will be unable to make up your mind how far there is irritation, and how far inflammation. In such cases it is best to mix the treatment; evacuate as much as you can; apply blisters rather than leeches, leeches rather than cupping, and cupping rather than bleeding at the arm; and at the same time give moderate diet and ammonia. The operation very soon ceases; and if you see it do harm the effect is over.

It is said apoplexy and palsy have very much increased of late years. Dr. WILLIAM HEBERDEN has written upon the increase and decrease of different diseases, and he states that the increase of apoplexy and palsy has been gradual and constant of late. His paper was written twenty years ago, and there is double these cases now in proportion—not absolutely, but in proportion to what there was a hundred years ago. The richer orders drink less wine, but the poorer orders may drink more porter. I do not know how it is to be explained. Sir GILBERT BLANE mentions, that he had more apoplexy in the hospital than in private practice; and the people who go there certainly drink more porter than the richer orders of society. I suppose porter or spirits, or both, have more tendency to produce the disease than wine.

LECTURE LVI.

DISEASES OF THE HEAD AND NERVOUS SYSTEM.—PARALYSIS.

THE next disease, gentlemen, to which I shall call your attention, is one which very often follows apoplexy, and is the result of that state which in the first instance is apoplectic, that is

PARALYSIS.

It may be defined to be a loss or diminution of sense or of motion, or of both, independent of any stiffness of the part, or of inflammation, or any mechanical impediment; but dependent entirely upon the condition of its nerves, or some other part of the nervous system. This disease paralysis comes from *παρالىω*, to loose or weaken, frequently begins with sopor, even with coma, and downright apoplexy. If it begin with a great degree of heaviness, it is called *sopor*, sleepiness. It is usually divided into three varieties: *hemiplegia*, affecting one-half the body divided vertically; *paraplegia*, affecting one-half the body divided horizontally; and *partialis*, affecting only one particular limb, or one particular sense. The partial paralysis may be of the eye, *amaurosis*; of the smell, *anosmia*; of taste, *ageusia*; of the touch, *anæsthesia*; or of hearing, *dysecœa*. There is no particular name for paralysis of one leg, one arm, or one side of the face. It may not vary according to the part it affects, but of course it may vary in its degree, so that the person shall have no use whatever of his senses, or of a portion of his body, or he shall have a use of them, only that it is impaired. Then the paralysis may differ according as it affects sensation, or motion, or both. It is very common to see paralysis only affect sensation; of course, this must be the case where

there is no motion ; if such a part be paralysed, it must be paralysed only in sensation. With respect to the internal part of the nose, the paralysis which affects it must clearly be a paralysis of sensation ; so with respect to the internal part of the ear and likewise of the eye. If the paralysis be within the orbit, so that motion is affected, it is not the fault of the eye, but of the muscles which move it ; but paralysis affecting the eye, properly speaking, must be of sensation. Sometimes, however, in the extremities we have a loss only of sensation, but that is rare. Sometimes you will see a person lose the sense of touch in particular parts of the body, but it is not of frequent occurrence ; for generally where a part is endowed with both sense and motion, the part either has motion only affected, or sensation and motion together. When a part is paralysed both as to sensation and motion, the proportion of the two is very various. Sometimes a person shall be powerless entirely in a limb, or in one-half the body, and yet he will feel a little, while he cannot move at all ; and sometimes the paralysis will be so perfect in both respects, that you may pinch him as hard as you please, and he may endeavour to move as much as he will, and yet both will be in vain. But there are some variations not so common ; for example, a person will sometimes lose sensation on one side of the body, and motion on the other ; he may lose sensation as to a leg, and motion as to an arm, and *vice versa*.

There is a more minute variety than this ; there will be a perfect loss of sense and motion in one limb, and then in another limb on the same side the loss of either sensation or motion is imperfect. The patient will feel a little with his arm although he cannot move it ; and in his leg he can neither feel nor produce the least motion. Nay, what is still more curious, this state has sometimes alternated ; the part which could not feel has become motionless, and the part which was motionless has by and bye lost sensation. Sometimes, when half the body is paralysed, the other half is in a state of great agitation and convulsions. These are cases of rare occurrence, but you will find them mentioned by authors. Occasionally there is an opposite state to the loss of sensation—the senses become morbidly acute ; so that a person is quite powerless as to an arm or a leg on one side of the body, and yet he will have such a morbid sensation that the creeping of a fly along the arm will give him great uneasiness.

Some persons whose limbs are paralyzed, cannot, in the paralyzed parts, bear the slightest breath of cold air : it has often been known to excite convulsions. But more frequently the sensation varies as to heat : patients will feel parts which are only of a moderate temperature exceedingly hot. I have met with several cases of this description. Some persons (many indeed) have so little feeling that a red-hot iron has been applied to the paralyzed parts, for medical purposes, and yet not the slightest heat has been felt. Many paralytic persons have sat near a fire, and their legs have been charred, and yet they have known nothing about it at the moment,

Dr. HEBERDEN mentions a case of hemiplegia, where there was a morbid sensibility of the sense of smell—where the patient smelt every thing so acutely that any strong odour gave him great pain.

I have had two or three extraordinary cases of paralysis, where persons had a morbid sensibility to cold. Dr. DARWIN imagined (and perhaps others did the same) that there must be a particular set of nerves for temperature. Seeing that persons sometimes lost the sense of touch, and yet had a morbid sensibility of temperature—sometimes feeling things very hot, and sometimes very cold—he drew this conclusion. Persons, sometime ago, imagined there must be a distinct set of nerves for motion and sense; and the fact has since been proved by Sir CHARLES BELL, and still more fully established by MAGENDIE.

A French surgeon, who published in 1780, states, that there must be distinct nerves of sense and motion, because sometimes the function of motion only was affected, and sometimes only sensation. That has been proved to be the case, but it has never been proved in regard to temperature.

It is said that the temperature of the paralysed parts is generally below what it ought to be, but that is not a proper expression; and I think Dr. ABERCROMBIE is most correct, he says that the temperature of the paralysed parts follows the temperature of the surrounding parts; that is, they will get hot sooner than other parts, and cool sooner than usual. Now the temperature around is almost always below the temperature of the body, and the paralytic parts follow the temperature of circumambient things more like inanimate parts than parts endowed with life. Paralysis sometimes may invade very slowly quite imperceptibly, or it may attack very suddenly. After it has once begun, it may extend or not; and it may proceed very slowly or speedily, and may likewise increase in intensity or never increase at all: the patient may live many years without any further increase. It may, therefore, take place suddenly or very slowly—it may remain stationary or it may cease—or, if it do not cease, it may remain stationary, or it may extend—or, on the other hand, it may become more intense. Sometimes one organ becomes affected after another. Occasionally it is intermittent, and even periodical. I never met with an instance of it till last year, and then I met with a case which was decidedly intermittent, and, indeed, in some measure periodical. The attacks always came on about half-past ten or eleven o'clock in the morning. They did not always occur at one particular interval, though sometimes they did; but the hour at which the invasion took place was always the same. After the lapse of many months the disease became less, ceased to be periodical, and appeared more of the form of fixed paralysis. Paralysis is very frequently united with other nervous diseases—particularly with mania and epilepsy. Persons who are epileptic, frequently at last (though, perhaps, if they be adults, not till after many years have elapsed) become paralytic; and insane persons, too, frequently are seen to be paralytic. When recovery takes place it is in general very slowly; but sometimes, though rarely, recovery is sudden. This disease may be induced by any thing which compresses a portion of the nervous system—which divides any portion of the nervous system—or by the disorganization of a portion. It is obvious, that whether a part of

the nervous tract be compressed, so that the function cannot continue along it, or whether it be divided, so that the function cannot continue along it, or whether it be disorganized, the result must be the same.

Should a nerve be divided, the parts below are paralysed; if the spinal marrow be divided, or completely compressed, or softened at any spot, the parts below are necessarily palsied. The compression may arise from fluid effused around—from fluid effused in the substance—from a collection of blood—or, in fact, from any thing whatever capable of producing pressure. But sometimes the disease would appear to arise independently of compression, division, or disorganization, in a state the nature of which we cannot exactly ascertain, but the part is unfit for its functions. Lead will have this effect; and arsenic, together with various other poisons, will deprive a part of the power of continuing its functions, so that paralysis takes place without our being able to say what is the exact effect produced by these agents. Cold, likewise, will produce paralysis. If a part be exceedingly benumbed, it produces common paralysis for a longer or shorter time afterwards. The higher the source of the disease the more extensive are the effects; so that palsy of the lower part of the spinal marrow, compression, division, or disorganization of the lower part of the spinal marrow, does not produce so extensive a paralysis as the same causes acting higher up; and if the cause be within the head, or in one of the hemispheres, or one of the thalami, nervorum, opticorum, or one of the corpora striata, patients generally have paralysis of the upper part of the body. The cause of hemiplegia, therefore, is in the brain. If both sides of the brain be compressed to an intense degree, then you have apoplexy: apoplexy is evidently double hemiplegia. If the cause, on the other hand, be very slight pressure within the head, you have an exceedingly slight paralysis—merely a little numbness at the ends of the fingers. Many persons who have a little fulness of the head, will have a numbness at the end of the fingers, and tingling; and on bleeding them it will go off. You have every degree of paralysis according to the pressure. If the pressure be inconsiderable, you have no more than an affection of the nerves at the most opposite part of the brain. I shall now speak of

HEMIPLEGIA.

In this disease, one half of the body, divided vertically, is paralysed. There is generally no loss of sight, smell, taste, or of hearing; indeed there is one case put on record by Dr. HEBERDEN, where an individual labouring under hemiplegia had an extraordinary acuteness of smell. But, in general, when you see paralysis down one half of the body, it is not perfect paralysis, in so far as the eye and the ear of that side, half of the nose, and the tongue, have their senses acutely enough. This form of paralysis very often is united with more or less delirium and phrenitis. It frequently attacks those who are fatuitous, or who labour under mania. It may be a mere hysterical affection, and soon recovered from. The other forms of paralysis may be hysterical; but hysteria, when accompanied by paralysis, is perhaps

more frequently accompanied by hemiplegia than any other form. Sir GILBERT BLANE says, that he found three cases of hemiplegia on the left side for two on the right. The pulse in the paralytic side is smaller than on the other. Hemiplegia is very commonly a sequela of apoplexy: when a fit of apoplexy is over, and paralysis left, the form is usually hemiplegic. Generally, when hemiplegia occurs suddenly, there is a degree of apoplexy, an imperfect apoplectic fit, a degree of drowsiness and sleepiness. There may be no stertorous breathing, but the person generally gently loses himself for a time. I think hemiplegia more frequently commences in that way than any other; but where a person has a downright attack of fully formed apoplexy, the disease is very likely indeed to follow.

SERRES says, that of one hundred cases of apoplexy which he examined, seventy-nine of them were complicated with palsy. Occasionally there is not only no real perfect apoplexy, but no sopor, no loss of the individual to himself for a time; but merely vertigo—a little confusion—and then, to his great astonishment, he finds an arm or a leg palsied. An attack of this description more frequently, I think, occurs in bed than at any other time. Many persons who lose the use of one side suddenly, and who have no decided apoplectic attack, tell you that it happened in bed. Occasionally, however, this form of the disease begins very slowly, in the fingers or in the toes, and creeps up; and occasionally, where it does begin suddenly, the person first loses the use of a leg or an arm, and then, an hour afterwards, or a day, or a week, he loses the other member of the side which was not previously affected. From the voluntary muscles of the whole half the body being more or less deprived of the influence of the will, the face is usually drawn to the opposite side. From the muscles losing the influence of the nerves connected with the brain and spinal marrow, they are more or less powerless, and the muscles of the opposite side, which are in due connection with the brain, get the better of them and master them completely, so that the face is drawn to the healthy side. The tongue, if it be drawn at all, is usually drawn to the same side, on account of the operation of the muscles. From the impaired state of the muscles of the mouth and tongue, the person does not swallow his saliva as soon as it is formed: we are always getting rid of it more or less insensibly, but, for want of this voluntary action, it amounts to a certain extent, and then runs out of the corner of the mouth. If the disease affects the mouth with any intensity, from the affection of the muscles of the throat the voice is thick; and perhaps he can scarcely pronounce his words with sufficient distinctness to be understood. If the paralysis be perfect, the face and gait of the person at once shew the nature of the disease. Should the disease continue any time, the limbs waste, they become flabby to the feel, and they waste in size. The mind, too, generally suffers a little. The feelings are much affected, so that he is disposed to burst into tears without any evident external cause; and he is for the most part very peevish.

Sir GILBERT BLANE informed me of a case accompanied by pleasurable twitches; and Dr. Cook, in his work on Nervous Diseases,

mentions the case of a person who had been very captious, but after a fit of palsy he became the most good-natured person possible. The symptoms which occurred at the time of the fit, or preceded it—such as vertigo and headache—may continue afterwards, and may increase. You will find a great variety as to the effects of sense and motion in the affected part. Sometimes the person retains his feelings perfectly, but he loses all power of motion; and in other cases a person loses both, but it is a very rare thing indeed to see a loss of the sense of touch. This disease very frequently does not follow apoplexy, but is itself followed by apoplexy. You may suppose that if the cause be in the brain, although, at first, it may not be so considerable as only to be just sufficient to produce hemiplegia, yet it may, if the morbid process go on, become more considerable, and at last be sufficient to produce apoplexy. When the disease diminishes, I believe, for the most part, you will find the arm mends last—that, after the patient has begun to walk tolerably even with the affected limb, his arms long remains useless at his side, and sometimes it never recovers. Some persons recover both limbs at once, but if there be any difference it is in favour of the leg. While you will see in some persons complete recovery, you will see in others no recovery at all; and while some will get worse, others will remain stationary. Some persons will live ten, or perhaps fifteen years in the same state. You will see another difference: they will mend up to a certain point, perhaps for a year or two, and then never advance again. It may occur again and again; recurrences of it are frequently seen. It is a disease which I have seen several times in children, and I believe more frequently than not they recover from it. The cause of this particular form of paralysis is sometimes mere fulness about the head—fulness which is often transient, and therefore the disease is transient.

Frequently there is found after death serous effusion, and that perhaps in a very inconsiderable quantity, even where the paralysis is very great; and perhaps the effusion is rather the effect of the morbid cause which induces the paralysis, than the cause of the paralysis itself. Effusion, however, is often the cause of paralysis. The most frequent state of the brain which I see, and therefore I suppose which other people see, is a softened state of some one spot. It is curious how small a portion is sometimes sufficient, when softened, to give rise to this disease. Occasionally the softening is very great, extending over a great part of one of the hemispheres, or the corpus callosum. This softening in many cases is clearly the result of inflammation. A chronic inflammation of the brain certainly often precedes this softened state, and very frequently it follows an acute inflammation of the brain. You will see persons seized with acute inflammation of the brain become paralytic, and afterwards find the brain more or less softened. You will sometimes see patients the subjects of this disease, and the disease will increase; they become delirious; perhaps have epileptic fits; the heat is very hot. All the time they are delirious they are complaining of great pain of the head; and on opening them you find a portion of the brain softened, and around it you find the vessel red, and the red vessels even running through the softened

spot. There can be no doubt in such a case as this that the disease is the result of inflammation. I have frequently noticed, and others have done the same, that after paralysis has begun, although there is no great affection of the head, the head will sometimes become affected. You see patients gradually complain of more and more pain, gradually have the head more and more hot, gradually they become more and more delirious, and then they will die. It appears as though at first there had only been softening enough to produce paralysis, only enough to produce inflammation, and the latter has then gone on to a far greater extent. It is said by some, that when there is softness of the brain, it is analogous to the gangrene of other parts. A part may be softened without our supposing it to be gangrenous—without there having been symptoms of gangrene.

There can be no question, that sometimes this softening of the brain is not inflammatory; for it is accompanied by paleness, not only in one spot, but all around. I can suppose that the brain may break up without inflammation, just as the coats of the stomach may sometimes be found perfectly pulpy, and perfectly pale. Occasionally the paralysis has been induced in hemiplegia by a coagulum of blood, and this may be of all sizes. When paralysis comes on in a moment, without any previous inflammation, I imagine that in general there is an effusion of blood. Apoplexy may be the result of the effusion of blood; but when the apoplexy is over—when, I presume, that general state of congestion of the blood-vessels which was sufficient to produce apoplexy has gone off, then there remains a clot just sufficient to produce hemiplegia.

Dr. ABERCROMBIE says a cyst will form round a clot of this kind even in a fortnight. Whether extravasated blood can be absorbed from a ventricle, if effused in any quantity, I do not know, but I should think not, because in most cases of that description the blood has lacerated the brain externally—has forced its way from the substance of the hemisphere into the ventricle. Four ounces of blood have been found in a cavity formed in the brain after paralysis. When the brain has been softened and produced hemiplegia, or only an aberration of the mental faculties, or fatuity rather, sometimes the vessels will suddenly give way, and then you have apoplexy—an effusion of blood suddenly takes place into the softened part. Softening is by some supposed to resemble *gangrena senilis*, that gangrene which takes place in the toes of old people, from ossification of the small vessels. Some will have it that it is not the result of inflammation, but of disease of the vessels which affects the circulation. I should imagine that it is the effect of different circumstances, just like every thing else. That inflammation will soften the brain there can be no doubt; and if the vessels be obstructed, so that the part is not nourished perfectly, it will become soft too. Of course pressure from an abscess or pressure from various tumors formed upon the surface of the brain, whether they be encysted, carcinomatous, melanotic, or whatever else, may have this effect. It has sometimes been occasioned by the pressure of an exostosis, from the bone growing too much in one particular spot, so as to compress the brain. Excessive

thickening in the membranes has given rise to the disease ; white tumors, reddish tumors, scrofulous tumors, hydatids, and tumors of all descriptions, have been seen pressing upon the brain, in different parts, in this disease. The disease occurs on the opposite side to that in which the cause of it resides. The observation of this fact is so universal—so many persons, who have extensive opportunities of examining patients, assert that they never met with an exception to it, that I cannot but think the few exceptions on record must have been mistakes. *SERRES* says that he opened one hundred and eighty cases of apoplexy united with hemiplegia, and in all those cases the affection was on the opposite side ; he opened forty-seven cases of mere hemiplegia, and there the affection was on the opposite side ; and that in about one hundred and fifty cases of paralysis given to him, the results were the same.

In general the brain is sliced very rapidly, and morbid appearances in the brain, I know, are every day passed over. On the other hand, when the spinal marrow suffers compression, or any cause sufficient to induce paralysis, the disease occurs on the same side. The cause of hemiplegia generally within the substance of the brain, and pressure of the brain usually produces apoplexy, so that I conceive we have a reason for apoplexy occurring so often first, and leaving hemiplegia behind. Apoplexy generally arises from a mere temporary fullness of the vessels of the head : it goes off, and then some injury occurs at one particular spot, and is sufficient to produce hemiplegia. Local pressure, however, on the surface of the brain may likewise produce the disease ; and local pressure on any part of the brain, if it be very intense will produce apoplexy, because pressure in any one spot of the brain, if it be intense, will necessarily compress the whole. Persons in general, in this disease do not speak well, because they have not full power over the voluntary muscles of articulation ; but sometimes, if they can speak well, they have not a proper word in their mind, and they cannot make themselves understood. This affection of the mind occurs sometimes without any hemiplegia, and sometimes for a period, and then hemiplegia supervenes. Some have an abundance of words, but do not know their proper meaning ; they distribute them about very incorrectly, so as not to express their wishes. Others have only a few words, and with these they endeavour to say every thing. *Dr. PRITCHARD* mentions the case of a lady who forgot the names of all persons, and another who forgot the names of some things, and who likewise forgot that she had ever been married. *Dr. CURRIE* mentions the case of a man who forgot the Hebrew language only out of several with which he was acquainted. *Mr. ABERNETHY* used to mention the case of a man who, after an injury of the head, thought he knew English very well, could speak nothing but French : he had been equally acquainted with both languages, he also thought he was only sixteen years of age. *Dr. RUSH* mentions the case of a lady who forgot her English, and spoke nothing but French for a month. A French writer on hemiplegia mentions a case of this disease in which, after the stupor ushering it in went off, the patient recollected neither persons nor words, and when he recovered the

words again, he forgot their meaning. He lost all his language, could not utter a single word, and at last, when he could, he forgot their meaning, and he preferred Latin to his own native language. The end of the case was, he died apoplectic. Some persons, however, forget only proper names. Sir ALEXANDER CRICHTON mentions the case of an attorney, who in his seventieth year married a young lady, and being very excitable, he also every evening saw his mistress. Under all this, not as a consequence, but as consequent upon the excitement of his brain, he was seized with vertigo and insensibility, and these were followed by a loss of memory. Dr. ABERCROMBIE mentions having seen a case in which the same wrong word was always used in the same wrong way. Whenever the patient missed the name—the name of a particular object, he applied the same incorrect word, whatever it was, to the same thing. In the *Psychological Magazine*, which is quoted by Sir ALEXANDER CRICHTON, in his work on Disorders of the Mind, a case is mentioned where a person, after much tiresome business, one morning on attempting to write a receipt, could not write more than the two first words. He wrote on slowly letter after letter in the most deliberate manner. He found that he spoke words different from what he meant; he saw that he was wrong, but he could not set himself right. This state lasted an hour or two, and then nothing of it remained. I have seen two instances of this description. I knew an instance of a medical man who made a dead pause and said, "I cannot tell the word; I want to tell you what is the name of such a thing." It will occur every thirty or forty words. Dr. CURRIE says that he knew one person who began his words in English, and ended them in Latin, during an attack of this description. There was a Welchman at St. Thomas's Hospital, twenty-five years ago—who had forgot his native language; but while suffering from an injury of the head he spoke nothing but Welch, and then when he recovered he forgot entirely, and talked only English. Dr. RUSH mentions an instance of a student who through his fever lost his Latin, and began learning it again when one day it suddenly returned, just as the power over paralysed parts of the body will occasionally do. He mentioned that a French Countess, during the excitement of fever, spoke the language of Lower Brittany, which she had learned when young. Dr. ABERCROMBIE mentions a case which after fever, an individual forgot all names; and after learning the names, he was taught to read, and began his Latin, and after a little progress, suddenly he had a strong sensation in his head; he applied his hand to it, and said, that he found all he had been learning he knew some time before.

In that form of palsy which affects one half the body horizontally divided, generally both sense and motion are lost. There is very frequently constipation and retention of urine; at last, however, the sphincter becomes paralysed, and there is neither retention of urine nor costiveness, but both fæces and urine pass involuntarily. In this form of paralysis it is very common for the affected parts to experience spasmodic twitches and catches, infinitely more common than where the parts are affected with hemiplegia.

In hemiplegia you sometimes have pain, but by no means so frequently as in paraplegia. The urine too in this disease is sometimes altered in quality; it is not sufficiently acid. It is perhaps alkaliescent. This is more particularly the case when the paralysis has arisen from an injury to the spine. When paraplegia does not come on suddenly, it usually commences in the lowest part, the toes, and extends upwards: its extent is various, but it generally reaches a little higher than the hips. It is very frequently produced by a fracture of the vertebræ, and of course the higher the vertebræ are in which the fracture takes place, the higher is the paralysis, and the sooner does death take place, if death do occur.

Caries of the vertebræ also frequently produces this affection. Any disease of the spinal marrow, and many diseases of the membranes, produce paraplegia. In some instances you will see the spinal marrow softened into a pulp at one particular spot; sometimes you will see it exceedingly hardened, and sometimes you will see the membranes also very much diseased. Sometimes there is suppuration producing compression, and sometimes an effusion of serum, or an effusion of blood. All the diseases which I mentioned as occurring in the brain, and producing hemiplegia and other forms of paralysis, may occur in the spinal marrow, and produce paraplegia. Sometimes a clot of blood has been found, sometimes considerable hæmorrhage compressing the spinal marrow, tumors of various descriptions, exostosis of bone, as well as a mechanically altered position of the parts diminishing the canal locally. I had a very striking case of this a few months ago, in a boy. His peritoneum was filled with tubercles, and besides symptoms of mesenteric disease, he had lost the use of the lower extremities, and he died of peritonitis. The paraplegia was at once explained by finding one scrofulous tubercle, as large as a nut, in the centre of the spinal marrow. The disease has frequently arisen from mechanical injury, when the bones appear to have sustained no violence, and in such instances I have seen recovery take place. In all probability, an effusion of blood had occurred, which was afterwards absorbed, or the parts received such a shock as was equivalent to concussion of the brain. I can conceive that as an affection of the brain may be induced by mere concussion, which will last for a day, or a month, or months, so a mere concussion of the spinal marrow may unfit it for its functions for a time, and the person eventually recover, at least one sees patients frequently recover from paraplegia produced by a fall or a blow upon the spine. The softening which you observe is sometimes the result of acute or chronic inflammation, and sometimes it is not the result of inflammation at all, but a morbid change not well understood. There can be no doubt that the disease arises sometimes from an affection of the head, because occasionally you will find no uneasiness whatever in the spinal marrow, but you find great symptoms in the head, such as giddiness and drowsiness.

Dr. BAILLIE wrote a paper to shew that in the greater number of cases of paraplegia occurring in adults, the cause was situated in the head. He gave but one dissection, and that was not seen by himself. I think the cause is evidently situated in the spinal marrow, from the

uneasiness being felt there ; or the morbid appearances presented on dissection : but occasionally there can be no question that the disease arises from an affection of the head. Now and then after paraplegia nothing is to be found, exactly as is the case after apoplexy and hemiplegia. The reason why you have spasms, twitchings, and considerable pain in this disease is, that it is so frequently produced by a certain degree of inflammation of the spinal marrow—an inflammation that softens it ; or by some cause pressing on the spinal marrow, or at any rate producing great irritability. And an affection of the roots of the nerves that a sense of pain is felt, and if it be a nerve of motion a spasm occurs. When the part is found compressed by a bone, and this compression is only partially established, then you have considerable twitchings. Paraplegia sometimes arises from cold. Not long ago I had a man under my care who had lost the use of his lower extremities from working in cold water in a ditch, digging the foundation of a wall, being continually hard at work in wet damp cold places. You rarely see hemiplegia produced in this way, the reason of which is evident : cold is continually applied to the lower extremities horizontally, but it is very seldom indeed that it is applied to the upper extremities vertically : the lower extremities are frequently in water, while the upper are not.

TREATMENT.

If there be a local cause evident and removable, our first plan is to attempt its removal. If there be suppuration from a carious bone, or injury of a bone, of course measures should be taken for letting out the pus. I have seen pus let out by trephining the head and opening the dura-mater, but success in such a case must be very doubtful. The removal of a portion of fractured or carious bone is always to be attended to when such serious effects take place as paralysis. If the cause be any thing taken into the stomach, we should endeavour to remove it. Should the disease appear to be of an inflammatory nature ; suppose the head be hot, and there be violent pain there, and delirium, then of course, common antiphlogistic treatment should be put in practice, such as bleeding, purging, leeching, and mercurializing as quickly as possible, applying cold, and starving the patient. In the first instance you must treat the complaint according to the symptoms of congestion or fulness ; but as, in the case of apoplexy, you must be on your guard not to go too far, for if you do not attend carefully to the patient's pulse every time you visit him, and do not visit him frequently, you may be surprised some day to find the pulse low, and the patient sunk irrecoverably. It is possible that paralysis may remain long after the inflammation is over, when the effects of inflammation only continue, when there is more effusion left or suppuration, or the brain is softened, and no inflammation, no congestion, at least all the patient's strength is gone, so that you would not be justified in severe measures, even if they did exist.

Great care is necessary in this disease not to push matters too far ; and when there appears no danger of life, but the disease still continues, we have in general to carry on a certain degree of antiphlogis-

tic treatment; to make the patient abstain from wine, and, of course, from distilled liquors, and frequently from animal food; but you must not starve the patient too much—not bring him too low in this chronic treatment. Mercury is very useful at first, but after a time it would only impair the powers of the patient; and when you have given it a fair trial, it is a pity to have recourse to it again. Iodine will act as well as mercury, but it is only proper when rubbed in in the form of ointment, and given internally in combination with potassa. I have occasionally seen it useful; but when you consider that the disease may arise from so many different causes, you cannot expect any one thing to be of general use. The plan most generally useful is antiphlogistic treatment, because it removes congestion, removes inflammation, and prevents the parts from being pressed upon by an excessive quantity of blood. If any thing by chance supervene that ought to be absorbed, antiphlogistic treatment will cause absorption better than almost any thing else; and should there be some morbid growth, this may also be diminished.

Local means and counter irritation near the part affected, are very proper—that is to say, in the nape of the neck, where the head is affected, and down the spine, where the cause is situated there, as in paraplegia. While you are doing these things, it is often very necessary, although you would not give wine, to give good food, and occasionally even tonics, and after a time they are often to be given rather freely. If there be great debility, you must not be afraid of giving wine. If you attend to keeping the bowels open, and restrict the patient from improper stimuli, you may give opium, for it is a great advantage to lessen the pain and lessen the spasm. I have always given it very cautiously. Where there are no signs of inflammation left, and the patient is languid, when you cannot fear inflammation at all, or excitement, then stimulants may be given. On this account strychnine has been particularly recommended; for although it is a narcotic that will destroy life, it is a powerful stimulant to the nervous system: it will cause parts to twitch, and while it stimulates the nerves of sensation, and the central parts of the nervous system connected with them, it at the same time stimulates those of motion, and produces spasm, twitching, and a tingling sensation. If a part of the nervous system be softened, and disease is induced by it, you cannot expect strychnine, or all the stimulants in the world, to cure the disease? You cannot by such means make a soft part hard. You may stimulate the part for a time, and make the most of it, by exciting it violently for a time, but that will not cure the disease. If the disease arise from pressure, how can any stimulant whatever remove it? It cannot have the effect of removing an exostosis or a tumor. I cannot say that I ever saw a case cured by it except the disease arose from mere torpor. Where it arises from cold, then you may suppose before-hand that stimuli will do good, and I think I have seen strychnine serviceable in such cases. In common cases of paralysis, arising, as they often do, from disease of the brain, and where the parts have been softened in consequence, you might give strychnine till the patient jumped out of bed, but it would only be to lie on the floor. I have given it freely, but I am not satisfied with it.

Nux vomica, camphor, cayenne pepper, musk, and ammonia, have been had recourse to, and have failed. Electricity and galvanism, I should say, stand upon the same level in point of utility with strychnine and other stimulants. They may do good if the disease arise from mere torpor; but if it arise from an organic cause, or from compression, or obstruction, or alteration of structure, you cannot suppose that they will do good according to the extravagant idea which some persons have formed of them. Paralysis will sometimes cease when the cause is in the brain. If it arise from effusion, the effusion may be absorbed, and by proper treatment you may expedite the absorption; but after a time, if you do nothing, it will be absorbed, just as congestion will cease after a time. A clot of blood may be absorbed; and whatever had been used, whether electricity or strychnine, of course, it would have the credit of it; but if you try a series of cases, and treat them with one particular remedy, you will see that every one must fail in a great number of instances. I now proceed to what are called local palsies.

The most common local palsies affect the four organs of sense—the eyes, the ears, the nose, and the taste; the side of the face as to motion only; the upper eyelid as to motion only; a leg or an arm as to sense or motion; and the hands as to motion only. The cause of these is more frequently situated in the course of the nerves after they have quitted the cerebral mass, or at the ends, than any where else. If the cause of palsy be in the brain itself, or in the spinal marrow, then you generally have more than local palsy. You have either hemiplegia or paraplegia; but if the nerves be affected in their course after leaving the brain, or only at their extremities, then you generally have local palsy. One of those affecting an organ of sense—affecting the optic nerves; is called

AMAUROSIS.

In this affection, which is also termed *gutta serena*, there is a dimness or loss of sight, without any fault of the humours, or the cap-sules, or the cornea, or in the conjunctiva. Frequently, on looking into the eye, you see at the bottom that it is lighter coloured than it should be, or rather greenish. On observing the pupil, you notice that the iris is sluggish or immoveable, and generally it is dilated. Sometimes, however, it is contracted—the pupil is exceedingly small—and when that is the case, the palsy of the optic nerve irritates the third pair, and this causes the iris to fall into this condition. The cause of this disease is in the expansion of the optic nerve, in the retina, or in the course of the nerve itself; perhaps at the very origin or termination—the corpora quadrigemina. Sometimes this arises from the softness of the nerve, sometimes from extreme induration, sometimes from tumors pressing upon it. Disease of the corpora quadrigemina frequently produces this affection, and so also does disease of the thalami nervorum opticorum: you see the latter continually softened, however, without any affection of the eyes. In this disease there is very frequently headache, vertigo, and evident signs of cerebral congestion; but this disease will sometimes arise from an injury of another nerve than the optic, from a wound of the supra-orbital

nerve, and various nerves of the face. Mr. WARDROP writes, that where the nerves of the face (the supra-orbital, for example) have been only half divided, the complete division of the nerve has restored the sight; so that imperfect division produced amaurosis, and complete division cured it. In 1815, a woman came to me, aged 27, who could only see one portion of objects. In her it had arisen from arteriotomy in the temple. There could be no doubt that, in performing the operation, a twig of the nerve was injured, and from that moment she partially lost the sight of the corresponding eye. It is very singular that an injury, or division, of a nerve of sense or motion of the face, should give rise to paralysis of the optic nerve. Disease will frequently arise from the sympathy of the head with the stomach; and so I believe that, in this case, the circumstance arises from sympathy, and not from any connection of function between the parts. Amaurosis is very frequently a temporary or periodical paralysis. Some persons have become amaurotic at night, though they can see well during the day; and this is called

NIGHT BLINDNESS, OR HEMERALOPIA, OR NYCTALOPIA.

It is common in hot climates, and especially occurs in new inhabitants. It is said to be produced there, in that particular instance, from the great glare of the sun, just as sheep are amaurotic in the spring, from being exposed to the glare of snow during winter. None of us can see at first, when we enter from the light into a dark room.

This has been noticed on the sea-coast, in the West Indies, in negroes and in sailors, sailing near the equator. It is described by Mr. BAMPFIELD, as very common, and Sir GILBERT BLANE mentions having seen it in connection with scurvy. In general it will yield with the other symptoms of scurvy; and when it will not, Mr. BAMPFIELD says that in all cases it yielded to blisters applied to the temples. Dr. HEBERDEN mentions an instance of night blindness in a person who never had it except on board ship. On the other hand, day blindness is mentioned by various writers, as occasioned by a dilated pupil, and occurring in Italian peasants. Regularly, at sunset, persons in this situation become either perfectly blind or very nearly so; the light which occurs then not being sufficient for them. I had a case of this kind in a woman, who had been suckling four months; she said that she had always dimness of sight at five o'clock in the afternoon; and after lying down and putting out the light, she gradually saw more clearly as the night proceeded, but when midnight arrived it became duller, and remained so till nine the next morning. She had nausea in the morning, and what is termed ptosis—a dropping of the upper eye-lid. The hearing is continually lost, but more frequently from other causes than paralysis. It is not uncommon for smell, hearing, and taste, to be paralysed when there is other paralysis. Sometimes in hemiplegia, sometimes in paraplegia, you see a person lose smell and taste, or smell and hearing. It is rare that smell and taste are paralysed, except in conjunction with other paralysis. When there is a cerebral disease, you will see several kinds of paralysis, as well as epilepsy, and other nervous diseases. Paralysis of the sense of touch, is termed

ANÆTHESIA.

It is common enough for persons to lose sensation and motion in hemiplegia, but to lose the sense of feeling only is very rare. Dr. BOSTOCK describes a case which arose from cold. It affected the surface, and indeed the substance of the hands. If needles and pins were passed into the flesh, the patient could not feel them. The surface and substance of the hands were paralysed as high as the wrist, and not only could not needles be felt if moved about, but electric sparks and shocks gave not the least sensation. Paralysis also took place in the lower extremities, and extended half way up the legs, yet in all other respects the person was in perfect health. A blister was applied, and produced its usual effects, some vesication; and pressure on the ulnar nerve gave its peculiar tingling only about half way down the arm—no farther than the parts were not paralysed. This came on from sleeping with the window open after a hot day. The most common partial paralysis, which affects motion only, is that of the face; and this chiefly arises from an affection of the portio dura. When this partial paralysis occurs, you cannot mistake it for a moment. The face is drawn to the opposite side; the eye of the affected side is unclosed; the patient cannot lose it, and it remains wide open while the other is shut. The consequence of this is, the tears are not directed towards the inner canthus of the eye, and they fall over. There is an inability to laugh. There is an inability to distend the cheek, and an inability to whistle or frown. Sense is in this case unimpaired. The portio dura, is a nerve of motion, and not of sense, and therefore motion only is paralysed. Some have thoughtlessly proposed to divide the other part of the portio dura, to paralyse the other muscle. This would do very well if it were antagonised, but unfortunately the orbicularis palpebrarum is a distinct muscle, stands on its own bottom; and therefore the effect would be, to prevent the patient from shutting either eye. It would prevent the affected muscles from being drawn to the healthy side, but both eyes would remain staring wide open, and hereafter the patient would be unable to make use of the muscles at all. This affection generally arises from cold, but not always. Very often you find a person deaf at the same time, and he has a discharge from the ear. This you may conceive from the situation of the portio dura; indeed, it often occurs in persons who have been exceedingly deaf. Sometimes it arises from caries of the bones, and sometimes it has appeared to arise from an enlargement of the gland behind the ear compressing the nerve. It will disappear spontaneously, but I dare say it disappears much sooner by stimulating the part. Occasionally, however, you find this tedious and incurable. It would be very wrong for you to suppose, as has been intimated too much, that this is a sort of paralysis which has no connection with an affection of the head. It may have no connection, because it may be external to the brain, external to the foramen ovale; but in many cases, if you examine minutely, you will find patients complain of fullness of the head, of giddiness, of sleepiness, and other symptoms, which clearly shew that there is an affection of the head as well as

this of the nerves. The nerve, no doubt, may be compressed within the head itself; the portio dura may suffer compression, and become softened within the head, as well as in the bones of the cranium, and after it has left those bones. It is not by any means a trifling complaint, and one of which there is no fear that it will be connected with other serious affections.

TREATMENT.

You must ascertain how far there is internal affection or not. If you find symptoms of drowsiness, you must treat these the same as in other cases; but if you find nothing of that description, still there may be a propriety in applying leeches over the portio dura, about the mastoid process, rubbing in mercury and iodine, stimulating the parts well, and applying blisters. It sometimes happens that the nerve of sense of the face is affected. The portio dura is a nerve only of motion, but there is another nerve, you are aware, which gives sense, and not only to the face, but, as it would appear, to the nose and the other organs of sensation in the head. Paralysis in this case is much more rare than in the other.

In the Medical Gazette for February 14, 1829, a case is described. There the fifth pair was diseased within the head; and the consequence of this was, that the eye remained open and the muscles were drawn to the other side. The effect was, that the pupil was dilated and the iris immoveable, but yet the patient could see. He could not move his eye, except in the way of abduction. When the portio dura is affected, the person can move his eye as before; he cannot close his eye, but he can move the ball as before: but in this case there is a loss of motion of the eye, except so far as it regards abduction. The abductor will exercise its power as well as before, so that the patient will constantly squint outwards. There was likewise a dropping of the eye-lid—there was what is called ptosis, and of course a loss of sensation in the face, and even in the eye. In an affection of the portio dura the patient feels as before; as, in this case, there was disease of the fifth pair, there was no sensation in the face; it might be pinched and scorched, the eye might be rubbed, the internal part of the nose might have substances introduced, but yet no sensation was experienced. There was, however, no distortion of the face—no want of power over the muscles of the face; shewing clearly the distinct use of the portio dura and the fifth pair. The temporalis and the masseter were paralysed, because the fifth pair is not altogether a nerve of sensation; there are branches in it of motion likewise. You are aware that if this particular nerve be divided intentionally within the cranium, that the external parts which it supplies lose their sensation, and, after a time, the eye becomes muddy and the cornea becomes opaque. The treatment of a case of this kind, can only be conducted on the general treatment of paralysis, exactly as is the case in disease of the portio dura. The diseases of the nerves which give rise to this partial paralysis, are precisely the same, though different in situation to those which give rise to hemiplegia and paraplegia. In some instances it is entirely mechanical compression. You may have hemi-

plegia from the compression of a tumor on the brain; paraplegia from the compression of a tumor in the spinal canal, or the pressure of a bone that is fractured; and so you may have amaurosis, partial paralysis, from the pressure of a tumor on the optic nerve. Any cause that will produce paraplegia or hemiplegia, will produce local paralysis when differently situated. Occasionally you have this local paralysis from local inflammation of a particular nerve; and the inflammation may be of so intense a character as to be seen after death; and, indeed, you may see ecchymoses. Sometimes there is softening of a particular nerve—even ulceration of it; and a decided effusion into the sheath of a nerve. Tumors have frequently been found resting on particular nerves; and when there are these circumstances of inflammation, softening, ulceration, and tumors, there is often besides paralysis, violent pain and spasmodic convulsive action of the muscles which these nerves supply. You will find some interesting and curious cases of partial paralysis of sense and motion which occurred rather suddenly, and in only one extremity. The extremity has been the arm, in almost every case. It has become suddenly cold, motionless, and senseless, and it has then mortified; not from inflammation, but becoming paralytic first it has presently mortified; so that frequently the whole case has not lasted more than a few days. One instance is mentioned by Dr. WELLS. In that case it took place in the left arm, but the arm was not examined. Another case occurred in the right arm, and was followed by death in a few hours. It was observed before death that the arm was only pale, and it is said that nothing was seen at the autopsy. There is another case mentioned of both the arm and leg, in hemiplegia, losing the pulse entirely, and death there took place in five days. It appears that some cases have taken place after external violence: the external violence has lacerated the inner coat of the artery, and an effusion of lymph has blocked up the vessel, so that the part has been deprived almost immediately of all blood, and the consequence of it, in the first place, was a loss of sensation and motion, and afterwards mortification. Mr. TURNER found a laceration of the internal coats and complete obstruction. In other cases there appears to have been no external violence, but the artery has been previously diseased and has suddenly given way in the inner coat, so that inflammation has been set up, lymph effused, and obstruction produced in that way. Occasionally the obstruction takes place from an accumulation of pus. These, I believe, are almost the only cases of partial paralysis in which the pulse is lost in the paralysed part. In most paralysed limbs it is weaker than in other parts of the body; but where it ceases altogether it arises from a disease of the artery.

MORBID APPEARANCES.

We frequently have tumors of a scrofulous nature in the brain and nerves. These are by far most frequent in infancy, but they are not so often found in very young infants as in those a little older. They are so much more frequent in infants than adults, that even in phthisical adults you seldom see them. They are most usually observed

in the hemispheres of the brain, and they are found more frequently in the cervical than in other portions of the spinal marrow. It is a constant observation, that scrofulous tumors of this kind are found more frequently in that situation than any other. They frequently appear to have originated in the pia-mater, both in the head and spinal marrow, which corresponds with the cellular membrane in other parts of the body. They are not numerous in the nervous system, for it is common to find but one. You see them, like the tubercles of other parts, of all sizes; and they agree with them in another respect, that is, they are sometimes inclosed in a cyst, and sometimes they have none. There was a man, an idiot, in Bethlehem Hospital, who laboured under St. Vitus's dance, and besides that he was addicted to the vice of masturbation; and in his brain there was this appearance, a scrofulous deposition in the cerebellum. The symptoms of a scrofulous tumor can only be inflammation, paralysis, and convulsions. It can make no difference what the substance deposited is; if it produce irritation you may have convulsions of various kinds, epilepsy, St. Vitus's dance, convulsions, or spasmodic diseases, and any sort of paralytic affection, together with pain in the head, delirium, and symptoms indicating inflammation. We sometimes find in the head scirrhus tumors, and they are sometimes enormously large, so as to occupy the greater part of the hemisphere; and they have been seen to occupy the entire cerebellum. Sometimes they are seen in the membranes of an exceedingly hard character; sometimes there is a cartilaginous, or fibro-cartilaginous, change. This sometimes proceeds even to bone, so that bony tumors are found within the head, within the brain, and upon the membranes; and there are bony tumors likewise in the cerebellum. You know that it is common to find plates of bone along the longitudinal sinus, and sometimes a spicula of bone has been seen growing to the inner plate—an exostosis. The symptoms of all these are the same. Occasionally you have encephaloid tumors in the brain, you have that deposition of new matter which is not seen in the healthy body, and which being like brain, but different in its nature, has been called encephaloid, and very frequently hæmorrhage takes place from it, so that it becomes a bloody tumor, and used to be called fungus hæmatodes. This most frequently occurs in young subjects; it was supposed to be the cancer of young subjects. It is termed by HOOPEr hæmatoma. If you cut into it, it is like the brain, soft and white, and in some parts it is red. Sometimes when there are tumors in the brain, you may have that black deposit called melanosis. This is not a malignant disease, and does no harm except mechanically by its bulk; but it frequently co-exists with scirrhus, and with encephaloid disease. Scirrhus, that is to say, fibrous formations, transformations, and ossifications, are found much more frequently in the membranes than in the brain itself; but encephaloid, melanotic, and scrofulous deposits, are found most frequently in the brain. Encysted tumors of all kinds are found in the head, and in the spinal canal. Sometimes these common encysted tumors, or serous cysts, called hydatids in common medical language, though they are not so, are found in the plexus choroides, and they are just the same on either side. You

frequently see small cysts in the membranes, as well as in the plexus choroides, and sometimes they are found in the substance of the brain itself. There are real hydatids occasionally found both in the substance of the brain, and in the spinal marrow; and on the exterior of these parasitical animals you find occasionally an appendage approaching to a tail. These are also frequently found in brutes. The contents of the serous cysts—not hydatids—are very various. Like the contents of serous cysts in other parts of the body, they are sometimes clear liquid, sometimes soft pultacious substance, and sometimes blood. Now no one before hand can tell the existence of any of these things. You see delirium, or convulsions, or paralysis, or pains in the head—all sorts of uneasy sensations; sensations of coldness and of heat, and you suspect from the continuance of these that there must be organic disease; and also when you find paralysis you suppose that organic disease is coming on, but it is almost impossible to say what it is. If you see organic disease in another part of the body—for instance, fungus hæmatodes in the extremities, and then the patient becomes paralytic, and has convulsions—you may suppose that the same disease which has taken place externally is coming on in the head; but the symptoms will only enable you to say, you presume there is organic disease. Schirrus, encephaloid matter, melanosis, and scrofulous formations, which occur in the head and in the spinal canal, are also frequently found in the distant nerves, where they cause but partial palsy. The nerves are subject to the disease of hypertrophy, existing in the brain, and giving a tendency to apoplexy and paralysis. You know that after amputation the ends of the nerves will become hypertrophied; sometimes much enlarged, and exceedingly sensible and painful; and they have been seen hypertrophied in fungous ulceration. Sometimes you will see a partial enlargement, like a pea, a large hypertrophy here and there in particular nerves, and these have been seen when the brain and spinal marrow have shewed none at all. These hypertrophied portions of a nerve sometimes give rise to great pain, and sometimes they become exceedingly hard; indeed, hard tumors, which perhaps ought not to be called hypertrophy. Cysts are found in the nerves, and occasionally ossification; and nerves, like the brain, will sometimes waste away. I shall have no other opportunity of speaking of atrophy of the nerves. If they be pressed upon they will waste away the same as other parts. If the nerves of the eye waste away, the cornea will frequently become opaque.

AFFECTIONS OF THE INTELLECT.

I now proceed to speak of those original aberrations of formation which are occasionally discovered. You are, of course, aware that the nervous system is more complicated in the series of animals, as we rise from those which display the least mental functions, till we arrive at man, who displays the very highest intellectual faculties. So, accordingly, the lower the animal is, the smaller is the brain; and in the very lowest we have nothing that corresponds to brain; but where there is mind there must be something to direct the functions; to feel sensation, there must be an organ. Accordingly, you will find it uni-

versally allowed, that the nervous system has an addition in proportion as we ascend in the scale of being. The Edinburgh Review was disposed to laugh at this as nonsense. It said that all heads were the same shape, and the same size. "As we ascend in the scale the animal acquires increased sense, power, or instinct; its nerves multiply, its brain becomes improved in structure, and, with reference to the spinal marrow and nerves, augmented in volume, more and more, until we reach the human brain; each addition being marked by some addition or amplification of the powers of the animal, until in man we behold it possessing some parts of which animals are destitute, and wanting none which theirs possess; so that we are enabled to associate every faculty which gives superiority with some addition to the nervous mass, even from the smallest indications of sensation and will, up to the highest degree of sensibility, judgment, and expression." You may therefore suppose, that if certain parts of the brain be deficient, the mind will in a correspondent manner be defective; and this accordingly is the case. I will first enumerate the deficiencies which are found in the brain, not referring at all to phrenology, but taking up the subject as it is treated by morbid anatomists. In the first place it is found in the higher beings who have a deficiency of the cerebral mass in any respect, that the convolutions are too small, or that there are too few of them on one or both sides. You are of course aware that the convolutions give a great extent of surface to the brain, just as the valvulæ conniventes of the intestines give an increase of surface to the interior of that canal; so that if there be fewer convolutions than usual, there must be so much less external part of the brain. Thus you find occasionally in human beings that there are too few convolutions on one or both sides, or you find them too small. Occasionally, one or two convolutions, usually found, have been entirely absent. Secondly, all the upper parts of the hemispheres, down to the vault of the ventricles, have been found to be absent, so that the ventricles lie entirely open, or are only covered by a serous sac; that is to say, by the arachnoid coat, in all probability, which lines them. Sometimes one lobe of the brain has been absolutely wanting, and sometimes one has been only too small. Thirdly, the thalami nervorum opticorum and the corpora striata, on one side or both, have been too small, or have been found absolutely wanting, or their place has been occupied by a cyst, but sometimes it has not. A deficiency is sometimes seen in the grey substance of the brain, and sometimes in the white substance. If the hemispheres be wanting, there is nothing beyond the crura cerebri, except a few scattered fibres, such as are seen in the fœtus before the hemispheres are formed; and indeed then there are no central white parts. Fourthly, the central white parts are found sometimes in a state of deficient development. Occasionally the corpus callosum is a mere membrane; and it has been found absolutely wanting in an idiot thirty years of age. In some brutes, for instance, birds and reptiles, the same is naturally observed; there is no corpus callosum, nor any fornix, and therefore such a brain resembles the brain of some brutes. When there is this smallness of these parts, other parts are not naturally so developed in

man as they are in brutes ; they appear larger in such a human being, but it is merely by comparison, and it is found that the parts are larger in brutes ; they appear larger, if the other parts be wanting, but it is merely in deception. You never find the tubercula quadrigemina a hollow tube, as in birds ; you never find the fourth ventricle so large as some brutes. The middle lobes of the cerebrum, though naturally smaller in brutes than in man, are in this case just as large as those in man. The cerebellum is sometimes deficient : it may be small, or the medullary centre may be small, or the lobes may be small—they have been seen to be a mere sac. This is observed in some brutes, and sometimes in the human embryo. The reason of this extraordinary formation is, that development has ceased, in most instances, at a certain period. You know that the brain, in the human body, is different at first from what it is at last, and occasionally the development of it stops ; and as the adult person grows up, you see that it is totally different from what it is in other beings. When this is the case, the cerebellum is so defective as to be a mere sac, the tuberculum annulare is wanting, though the middle lobe of the brain is present, because the tuberculum annulare is found to be in proportion to the size of the cerebellum. You find, where there is no cerebellum, still the corpora quadrigemina may exist, because they have no relation to the cerebellum, but to the spinal marrow. As to the pineal gland, you find that in all formations of the brain. Now the cerebrum and cerebellum may be absent, although there is the spinal marrow and the medulla oblongata ; but if there be no spinal marrow, it is found that there is neither cerebrum, nor cerebellum, nor medulla oblongata. As to the spinal marrow itself, it may be entirely absent, and sometimes it is found divided ; and it is said that when it is divided into two, the brain is always absent. Sometimes it is only channelled down the centre ; and when this is the case there are frequently other malformations—such as a want of brain, or a want of bone in the spine. When there is a channel, it is found to arise from the want of the cortical substance of the spinal marrow, and the channel seems continued all the way up to the fourth ventricle. The division, or the channel, may be large or small, and it may not run the whole extent. The channel itself is found at all ages. Two instances of maniacs are recorded, in one of which two central canals were observed in the spinal marrow, and in another only one. Many brutes have this central canal. Sometimes the spinal marrow is not wanting, but is very small ; and sometimes the smallness is local, occurs only at one spot, just as smallness occurs sometimes only in one part of the brain. Now it does not follow that the nerves should correspond to this deficiency ; there may be a deficiency of the nerves, when the brain is wanting, and a deficiency, too, when the spinal marrow is wanting, but occasionally the nerves are found perfect, although the brain and spinal marrow are found wanting. There they are, ready for action, but they want the brain and spinal marrow to put them in motion. When there is this deficiency in the nervous system, the corresponding parts of the body are sometimes small, and likewise atrophied, yet occasionally the body is perfectly sound—in all other respects

well developed, where this deficiency of the nervous system exists, excepting that the heart is never found where there is no head. SERRES says that he has found a heart where there was no head, but nobody else ever did. Where there is no head, I believe the lungs are never found; but notwithstanding there is no head, there is always some rudiment of the alimentary canal, and for this simple reason—it is formed first. The causes of all these wants—smallnesses, and deficiencies in the nervous system are—First, original defective power;—the parts are not developed, through some deficiency in the formative power, independent of all external circumstances. There is a want of power in particular rudiments of the embryo to develop the various parts. Secondly, they are wanting, I believe, through some previous irritation. They have existed, but some irritation has also existed, which has wasted them, or arrested their progress. Thirdly, pressure, we know, will cause atrophy in future life, and it will occasionally prevent the developement of parts in the fœtus. If the brain be the organ of mind, it stands to reason that this deficient developement must be attended by a correspondent deficiency in the mind, in some way or other. If the brain be altogether wanting there can be no mind at all; and, accordingly, you will find fœtuses continually formed without any head, and, of course, they cannot live, so as to have a chance of manifesting mind. But you will see some born, and living some days, who have merely a little brain about the tuberculum annulare, and they will cry, and suck, but they will do no more. You will see others, who have just sufficient brain to eat and drink, breathe and grunt, live to be two or three years of age. You will see others, with a little more brain, who will never be able to talk; but they will laugh, cry, be pleased by certain external objects, and be displeased with others. You will find others, again, with more brain, who are able to go about, and may be taught to do certain things mechanically, as it were by art, but they never can exercise judgment. They may be brought to go to bed at a certain time, to get up at a certain time, and to eat at a certain time, but they never go beyond that. Others have sufficient brain to perform the lower offices of life, but not to perform any duties that argue the least intellect. Others, who have still more, can perform the offices of life, but they are known in the world as very weak persons. So we go on till we come to fair average people, and we pass them, and come to very intelligent characters. However, these intellectual varieties do not depend upon the developement of the whole of the head: it is found unquestionably that they depend upon the developement of the anterior part: for you will have many of these weak people sufficiently large in every part of the head but the front. On the other hand, you will have persons with a very small developement of all the parts of the brain excepting the front, and who shall be sufficiently clever persons. These are undoubted facts.

IDIOTCY.

Under the term “unsoundness of intellect,” are comprised idiotcy and insanity. By idiotcy, or idiotism, is meant the absence, or rather

the deficiency, of intellect, which amounts to such a degree as to disqualify an individual for the common offices of life. Generally speaking, a madman has a wrong opinion, or a wrong feeling; but an idiot may be generally said to have none. The madman is wrong, but the idiot is defective. This defect, according to our law, must be so great, that the individual, in order to be constituted an idiot, must be unable to number to twenty, or to tell his age, or to answer any common question, by which it may plainly appear that the person has not reason sufficient to discern what is for his advantage or disadvantage. That man is not an idiot who has any glimmering of reason, so that he can tell his age, know his parents, or such like common matters. Now this deficiency of intellect does not refer to any deficiency of the external senses; idiots can often hear, see, taste, feel, and smell, just as well as other people. A man may be an idiot, and yet be able to use his five external senses perfectly. Neither does it at all refer to what phrenologists call the knowing faculties, by which a person judges of music, colours, distance, size, number, or can recollect words. An idiot may do all these things, may understand music to a certain extent, may distinguish colours very well, and also size, distance, and numbers, but he may be a complete fool for all that. Many idiots are defective in these respects; very great idiots know nothing at all; they can merely eat, drink, and slumber. Many persons are idiots who can count above twenty, notwithstanding what the law says; and medical men would declare many persons to be idiots although they could count to a hundred and above. Some idiots take a great delight in music; I do not know that they will be ever great musicians, but they know what music is, they understand it, and some sing very well. Some will sketch likewise exceedingly well, and some have an excellent memory of words, so that they will remember long passages. SPURZHEIM saw a young man at Hamburgh, the anterior part of whose brain was favourably developed, but whose forehead above that part was scarcely an inch in height, and in whom the movements of the superior parts of the brain was consequently impeded, and he had only the functions of the inferior anterior parts. Now this individual recollected names, numbers, and historical facts, and repeated them all in a mechanical way, proving that he had a much better memory than many acute men; but the functions of comparison, penetration, and sagacity, were utterly wanting. He says that he saw at a poor-house a boy who excelled in verbal memory, but as to judgment he was an idiot. Dr. ROBERTS shewed him an idiot who repeated whole passages from the bible, simply from hearing them read. He adds, that he saw an idiotic child who sang several airs, and if others began to sing, she accompanied them with harmony. It is very possible, therefore, for an idiot to have a pretty tolerable share of those particular faculties by which a person understands distance, knows colours, can recollect numbers, calculates, distinguishes one object from another, and so on. It is not, therefore, the deficiency of these things that constitutes a person an idiot, for many very clever persons are deficient in these particulars; many clever persons cannot tell red from green, and many clever persons cannot tell "God save the king" from "Rule

Britannia." Others again can never be made to calculate; and some persons can scarcely keep their own accounts, who otherwise are reflecting and very clear-headed persons. A person may be an idiot, on the other hand, who has these faculties; an idiot may have them, but their absence does not constitute a man an idiot. You of course perceive that there is every degree, from the lowest to the most perfect idiotism, in which an individual merely eats, drinks, discharges his *fæces* and urine at all times and in all places, slobbers and grunts, up to a person who is merely called imbecile. Such a degree as makes a man soft, but will not qualify him by law to have the privileges of an idiot. Sir Andrew Ague Cheek, in the *Twelfth Night*, is a very fine illustration of idiotcy. You perceive that insanity must have infinite varieties, because many faculties of the mind may not be disturbed at all, and others may be disturbed in various proportions; and therefore the varieties of insanity can never be described perfectly. Idiotism, however, being merely a deficiency of intellect, and idiots merely varying as to more or less deficiency, the one must be more simple than the other; yet you will find that idiots vary in their character just like sane people. There are no two persons alike in their senses, any more than there are two faces alike; and idiots vary in their character in the same way. Many may be idiots to the same degree, but there are various other parts of their character which do not correspond; and therefore idiots will vary in their character to a great degree, just as sane people do. Although the deficiency of any of the knowing faculties, and the deficiency of any feeling, such as good-will towards mankind, revenge, passion, lust, and so on, does not constitute idiotism, yet if the anterior superior part of the brain be so defective as to constitute the individual an idiot, there is seldom so much defect in that part of the brain without there being a good deal wrong in other parts. You never find an exceeding degree of monstrosity without finding minor degrees. When a *fœtus* is formed without a heart, there are generally supernumerary fingers and toes; wherever there is a great monstrosity of body, there is almost always minor monstrosity; and so when the head is defective in one part, to such a degree as to constitute idiotcy, there is generally more or less defect in certain other parts. Thus it is very common to see an idiot with these various knowing faculties defective, as well as those which constitute him an idiot; and it is very common for him to have certain propensities deficient, or some in excess. There are generally other parts of the brain wrong, although the erroneous state of other parts does not constitute the disease. Some idiots, in conformity with all that I have been saying, are exceedingly gentle and good-natured. Some, on the other hand, are very passionate, never can be trusted, and if you excite their feelings into violent passion they will take any thing they can procure, and murder you, if they can. Some are exceedingly mischievous and sly, without being passionate. Some are very much disposed to thieve, and will steal every thing they can. Others, again, are exceedingly low spirited and gloomy, and some are exceedingly lustful, have violent sexual desires. These desires frequently go wrong—partly from some error in the faculty itself, and partly from some

deficiency in intellect ; so that many of them are beastly in various ways. I knew an instance of an idiot in a workhouse, who had all the imitative disposition of a monkey. When the surgeon went to visit the patients in the workhouse, he universally observed what was done, and as soon as the surgeon was gone he would feel the pulses of the various patients, and get a piece of tape, and begin bandaging up their arms, in order to bleed them. You find cases of a similar description mentioned by PINEL, and other writers on insanity. There is no doubt about there being a propensity in the human mind to imitate. Idiotism is very often conjoined—like all diseases of the nervous system—with other diseases of the nervous system. It is frequently connected with epilepsy, with chorea, and with paralysis ; so that you continually see idiots epileptic, or constantly shaking, and more or less paralytic. When the disease is congenital, there is generally a defect of brain at the superior anterior part, and generally the whole head is too small ; there is a decided defect there in general, and more frequently than not, the whole head itself is too small. GALL says, that if the head be only from fourteen to seventeen inches in circumference, and only from ten to twelve from the root of the nose to the foramen magnum, there is always more or less stupidity ; that heads of eighteen inches and a half in circumference are small and give but a mediocrity of talent, and that the full size is from twenty-one to twenty-two inches in circumference. However, idiotism may be produced without a defect of brain ; the brain may be plentiful enough, but be of bad stuff. Dr. SPURZHEIM says that he dissected an idiot, two years of age, in whom the grey and white substance were of a greyish blue colour, and, instead of being of the ordinary texture, were of a gelatinous quality. Such a brain as that, although there was plenty of it, was not of a sufficiently good quality to execute its functions. In such an instance the brain may be very large, but the additional size will not counterbalance the bad quality. It has happened sometimes that an individual has been born an idiot with a sufficiently well developed head, and the brain has appeared suddenly to improve in quality. The brain improves in quality as the body grows ; it becomes of a different quality as age advances to a certain point ; it attains a perfection of structure, not as to size and development merely, but perfection as to quality ; and then it afterwards declines, like all other parts of the body, in quality and size. Now in some individuals the improvement of quality does not take place at the ordinary period, and the result is that they remain children longer than other people, and they recover from their idiotcy at a certain period of life. The same circumstance occurs with regard to puberty ; many instances of which are on record. Dr. MASON GOOD says that he knew a lad cured of his idiotcy by a fall from the first floor to the street. A German writer relates a case of fracture of the skull by falling from a great height, which cured deafness, and after the fracture the man became able to speak. This was upon the same principle as idiots are cured by the fall of a tile, or any thing else. In the *Philosophical Transactions*, vol. xxv. you will find a case where want of hearing was cured by a fever. In cases of torpidity of the brain, where there is an

inactivity of it producing idiotism, you may expect the head to be of the same size as in other persons ; and it may be large, from the brain being blubbery, or from there being a collection of water. When an idiot is so congenitally, he seldom lives to be above 30 ; the defective power which causes the brain to be in such a state, is generally connected with a want of energy throughout the whole body. Now just as the brain may be originally torpid and inactive, so from excessive action it may fall into the same state ; the same effect precisely may be produced, if there be excessive action before the brain has acquired its full growth—full structure. This is very likely to be the case, for many prococious children, who have been shewn to the world as prodigies of talent, have, through the excessive application imposed upon them by their preceptors, become idiotic ; and when they have not become idiotic they have frequently died. The powers of the body have been exhausted, and some organ more than another has fallen a victim to disease ; so that they have died. Intense application will produce temporary idiotism.

You may have fatuity or idiotcy come on in after life, when persons have not been born idiotic from other causes—for instance, from blows, and from any of the diseases which I before mentioned under the morbid anatomy of the brain : and such disease as causes paralysis ; tumors pressing on the anterior part of the head ; softening of the anterior lobes—those parts which I stated are deficient when the person is a congenital idiot ; pressure, softening, or any thing which impedes the functions in any way, will of course, produce idiotism. Fever being so often accompanied by violent irritation of the brain will frequently leave idiotcy, and insanity has done the same. It is very common, when persons have been long insane, for them to lose their faculties altogether : idiotcy is a very common result of insanity.

Now the words idiotcy and fatuity are not applied indiscriminately. They are nearly the same thing, but idiotcy is generally used by modern writers for that which is congenital, born in a person ; and I believe you will generally find fatuity applied to that imbecility which comes on in after life. If insanity have been the particular disease which has preceded the imbecility, then the imbecility is called dementia—unminded. Should there be great deficiency of the anterior part of the head, if it be a question of idiotism and imbecility of mind, the case is very easily ascertained ; but the head may be large, and yet the person may be an idiot. In the latter case you have to question him as to common circumstances. You should ask him questions on the most ordinary subjects, and generally put money before him, and make him count it—count it as simple pieces of money, and then make him shew the value of the whole, and you will soon find out whether he is an idiot or not. If he stumble at such questions as these, you may give an opinion that he is not qualified to manage his own affairs. But besides such an examination as this, it is right to look at the individual's head ; and if you see it morbidly small, your opinion as to his idiotcy would not be increased, but your prognosis would be exceedingly affected by it. If you see there is an absolute want of brain, you may take it for granted that the prognosis ought to be unfavour-

able. There is little hope of its growing to such an extent, becoming of such dimensions, as will enable him to be clever, like other people. This will also guide you very much in your attempts at benefitting the sufferer. If you see a great deficiency of brain, all attempts at benefitting him will be hopeless. You might also derive great advantage from inspecting the head and observing the general character, so as to give directions to his friends how to manage him. You should observe what passion is strong enough to render it necessary to be on their guard against. This will be of use, as well as observing the imperfection of the head, for the purpose of ascertaining the degree of idiotism that exists in the individual.

TREATMENT.

All that can be done is to feed the patient well, give him fresh air, and improve his body altogether, on the one hand, and cultivate those parts of the mind particularly which are best developed, on the other. If there be found any talent for music or calculation, you must make the best of it. He may be unable to gain the command of all his faculties, but by strengthening one he may not be so miserable an object as if he were altogether neglected. This is an important point ; because to set down an individual as an idiot when he has some faculty that might be made something of, would be cruel. In respect to the importance of good air and good food, in lessening idiotism, I may mention that particular form of idiotism called cretinism, which is produced (I should conceive) by bad air or bad water. You cannot travel in Switzerland among any of the vallies, where the air is stagnant and wet, full of the exhalations from marshy ground, and where the water for the most part is very bad, and the people so ignorant in many parts that they drink water like swallowing so much chalk, although good is to be had, without seeing plenty of cretins. They are miserable objects, mostly always short ; in fact, they are dwarfs, and in general have enormous heads. Their features are shrivelled ; they look like decayed autumnal leaves, and all of them have ace of spades noses. Their limbs are soft and flabby, their mouths are wide, extending from ear to ear, their lips are very thick, and they have a dry looking skin. All of them are more or less idiotic, and many of them have a goitre—an enlargement of the thyroid gland. These poor creatures are found after death to have the bones of the head very thick, and sometimes there is a quantity of water in the head : they are more or less hydrocephalic, but there is hypertrophy of the bones of the head. The cavity of the skull is not so large as the external appearance of the head would lead you to suppose. Sometimes the diminished capacity is from the excessive quantity of bone, and sometimes from a collection of water ; and in other cases the brain, although large enough, is of bad quality. The tongue in some cretins is hypertrophied, is too large for the mouth, and a large number of them are deaf and dumb. There is a great difference in their disposition ; some should never be trusted ; they are such destructive creatures that they do all the mischief they can, while others are innocent, and as tame as lambs. Some females have a great number of

these children ; they have desires, like other people, and they fall in love with each other, and marry. It is said, that if two persons marry with a bronchocele, their progeny generally have a goitre ; and if their goitreous progeny marry any other persons with a bronchocele, then the third generation are sure to have something more than bronchocele—they are sure to be idiots. There is a great relation between goitre and cretinism, no doubt ; and what affects the thyroid gland, if it affect the head and brain, will of course produce idiotism. This is more an object of curiosity and medical jurisprudence than medical treatment, and sometimes it is very important to our profession.

INSANITY.

You will recollect that unsoundness of intellect comprises idiocy, imbecility, and insanity. Insanity is called sometimes lunacy—mental aberration—hallucination—alienation—madness.

I stated in my last that certain intellectual faculties might be deficient, very deficient, such as the faculty of music or calculation, and the person not be at all an idiot. So aberration of mind in insanity does not exist merely because there is something wrong in the mind. There may be much very wrong in the mind, and yet the person not be at all insane.

In the first place, derangement of volition does not constitute insanity. A person may have palsy of motion, and yet he is not insane. He may wish to move his limbs, and be unable to do so ; or he may wish to move them in one direction, and they may go in another, in a directly opposite motion, but yet he is not on that account insane. Neither does a want of the external senses constitute insanity any more than it does idiotism. There may be mere palsy of the senses ; there may be a want of sensation from disease of the external organs of sense, and yet the person may be perfectly rational. Neither does it refer at all to the knowing faculties, such as music and calculation, which may be called internal senses ; these may be more or less wrong, and yet the person not be insane. A person labouring under chorea, labouring under tetanus, is not insane. So a wrong sensation does not constitute a person insane. He may have double vision, he may see two fingers when only one is held up, yet on that account he is not insane. Neither if a person see images, figures, spectres, is he on that account insane if he do not believe that their existence is real. Some persons see objects which really do not exist, images of objects which have no existence, and they know that such things do not exist, and, therefore, they are not insane : they are aware that it is a mere deception.

BRUTUS and SOCRATES are said to have seen, the one the shade of CÆSAR, and the other the *familiar spirit*, as he called it ; but if neither the one nor the other believed this they were not mad ; or if they merely believed it in accordance with the belief of the day, then they were not mad ; but if they knew better, and yet believed these things, then, of course, they were deranged. Hence there may be false perceptions, and yet the individual may not be mad, but a person may be mad, and also have a false perception. Many men abso-

lutely mad think they see things which they do not ; but many persons without a false perception see something that has no existence, but knowing it has no existence they are not deranged ; and again, many persons absolutely mad never see any unnatural appearances whatever. But in insanity you observe in a great number of cases an absurd belief, and this may refer to something past, there may be a fixed opinion altogether absurd upon matters that have passed, and there may be an absurd opinion as to something present : for instance, they may see things which other people do not, and they may positively believe it. Insanity, therefore, may be an absurd belief as to things present and things past, and thirdly, that absurd belief may refer to a mere abstract opinion. Persons may believe something so preposterous that every body will consider them mad for so doing.

LUTHER, although he was so able a man, was mad on some points. He fancied the devil was in him, and he heard him speak. LUTHER used to talk to the devil, and the Popish writers not only believed that the devil was in him, but some of them affirm that he was got by an incubus, a kind of young devil ; and at length, when he died, was strangled by the devil.

Dr. FERRIDAY, of Manchester, had a patient the same as LUTHER : he fancied he had swallowed the devil, and he would not discharge the contents of his alimentary canal through a benevolent feeling, lest he should let him loose into the world. I heard a gentleman speak of a man who would not make water lest he should inundate the country : he thought it would come from him in such torrents that the country would be washed away. There was a similar case to this relieved by lighting a fire round the patient, and making him endeavour to put it out lest the house should be burned down. Many persons fancy there are frogs, serpents, and snakes, within them ; and one woman fancied that a whole regiment of soldiers were in her. One man fancied he was too large to go through a door-way, and when he was pulled through he screamed, and fancied he was being lacerated, and actually died of fright. Another woman instead of fancying that she had a regiment of soldiers in her, fancied that she had a monster in her genitals ; and when she got rid of this idea by the contrivance of her physicians, she took another fancy, viz. that she had been dead, and had been sent back to the world without a heart, and was the most miserable of God's creatures. At the Friend's Retreat, near York, one patient writes, " I have no soul ; I have neither heart, liver, or lungs ; nor any thing at all in my body, nor a drop of blood in my veins. My bones are all burnt to a cinder ; I have no brain ; and my head is sometimes as hard as iron, and sometimes as soft as a pudding."

Bishop WARBURTON, in a note to one of his works, speaks of a person who thought he was converted into a goose-pie ; and Dr. ARNOLD saw a man who fancied himself in the family way. POPE describes, in his Rape of the Lock, many of these fancies.

A man in the University of Oxford fancied himself absolutely dead, and lay in bed waiting for the tolling of the bell ; but not hearing it at the time he expected, he fell into a violent passion, and ran and tolled

it himself. He was then spoken to on the absurdity of a dead man tolling his own bell; and it is said that he returned and was afterwards sound in his intellect. However, he must have been pretty nearly in his senses at this time; he must have been ready for sanity, or such a change would not have been effected by a mere mental cause like this. SIMON BROWN, a dissenting minister, wrote the best answer to TINDAL's work, entitled, *Christianity as Old as the Creation*; but notwithstanding the great powers of mind displayed in this work, he thought that by the judgment of God his rational soul had perished, and he had only brute life; and he absolutely inserted this in the dedication of his work to the Queen; but it was afterwards suppressed. Baron SWEDENBORG, a very learned and able man, thought that he had communications with the ALMIGHTY for thirty years, and that he had been shewn by the ALMIGHTY the mysteries of nature. Many think he was right; but no one could have that idea without insanity. It is similar to the case of the celebrated PASCAL, who, while he was working the problem of the cycloid curve with great powers of intellect, was tied by his own desire in his chair, lest he should fall into a yawning gulf before him. He laboured under this partial insanity while his powers of mind were otherwise as strong, and he was as much in his senses, as other people who have no madness whatever.

In insanity, therefore, you see that all the faculties are not deranged; there may be merely an absurd belief upon some one point, and the patient may otherwise be in his senses. Many, indeed, who are deranged, will read and understand what they read; will paint, will exhibit mechanical contrivances, will work, and will talk rationally on many subjects—nay, more than that, some will shew extreme sagacity in accomplishing their mad purposes, in concealing their mad impressions, and convincing others of the truth of their mad notions. In a case of madness tried at Chester, before Lord MANSFIELD, the patient was so clever that he evaded questions the whole of the day in Court, and seemed perfectly sane to every body, till Dr. BATTY came into Court, and knowing the point of the man's derangement, asked what had become of the princess with whom he had been in the habit of corresponding in cherry-juice? Instantly the man forgot himself, and said it was true, he had been confined in a castle, where, for want of pen and ink, he had written his letters in cherry-juice, and thrown them into the stream below, where the princess had received them in a boat. There are persons in insanity who have some of their mental faculties increased. Dr. RUSH says that he had a female patient deranged, who composed and sang hymns and songs delightfully, and yet she never shewed any talent for either music or poetry before. There was a partial excitement of the brain while another part was going wrong. He said that he knew two similar cases, where in insanity a great talent was shewn for drawing.—Dr. WILLIS had a patient, who, in the paroxysms of insanity, remembered long passages of Latin authors, and took extreme delight in repeating them; but only during the period of the paroxysms. Dr. COX mentions a musician, who talked madly on all subjects but music, and his talent for this appeared increased; his performances on the violin were stri-

kingly singular and original. Dr. RUSH mentions the case of a gentleman who was deranged, but he often delighted and astonished the rest of the patients, and the officers of the institution, by his displays of oratory when preaching. PINEL mentions the case of a man who was very vulgar at other times, but in his paroxysms of insanity he discoursed very eloquently upon the revolution, while standing upon a table in the hospital. Similar circumstances to these have been seen in fever. When the brain is under the excitement of fever a person will sing very correctly who has shewn but little talent for singing before; and sometimes, although an individual may be delirious, yet he will speak very eloquently upon certain subjects for a short time; for, of course, this does not last long.

You may have persons deranged on only one or more points, while the rest of the faculties are sound; or you may have them deranged on one or more points, while one faculty or more will be increased; but you may have them wrong on all points. In the latter case they will ramble from one point to another, display great inconsistency, and exhibit a wild association of ideas. They will be incapable of fixing their attention sufficiently to speak correctly, or to read. So wrong are they, that very likely they do not recognise those with whom they were formerly intimate; or if they do not recognise them, it is in a very strange manner; and they have generally a very imperfect memory altogether—most likely have false ideas of nearly every thing with which their memory is charged. Their absurd opinions too are likewise general; perhaps they reason very incorrectly on every thing, or they probably make no attempt at reasoning at all.

In partial insanity, which is called *monomania*, insanity on a single point, when they do reason correctly from a starting point, yet it is to be remembered that the starting point itself is partially incorrect. But in intense insanity they do not make an attempt to reason at all, or they reason in the most incorrect manner.

In insanity the propensities and sentiments are frequently disturbed. Some are so far disturbed as to be superstitious; some again are very impious. Some are thievish, some are modest, some are very silly, some are lascivious, some are depraved in their sexual feelings, some are very cheerful, some are melancholy, some are fearful; sometimes violence and tranquillity, or melancholy, alternate.

There is no real difference between mania and melancholia. You will find the latter term employed by many writers to signify madness connected with great depression of spirits; and you will see it employed by PINEL to partial insanity—that is, to monomania; but it is improper. There is no essential difference between mania and melancholia; one faculty of the mind is disturbed in one case, and one in another. One person may be gloomy and another cheerful, but the latter is just as mad as the former; a person may be gloomy to-day, and cheerful to-morrow. In insanity, every feeling of the mind may, in its turn, be excessive, or every feeling may be defective, or at least overcome by other feelings; and every feeling may likewise be depraved, and, in consequence of the varied state of feeling in insanity, you have various physiognomies: you have one madman with the

physiognomy of pride, holding up his head as high as he can, and looking with scorn on those around him; in others you will see the physiognomy of suspicion—a hanging down of the head; in others you will see the physiognomy of rage—a frowning of the eyes and a derangement of the features. You have the passion displayed in insanity according to the state of the feelings. In some instances of insanity you have nothing but the feelings affected: there is no aberration of intellect, but it is a disease of some of the feelings. There can be no question that some have an irresistible desire to commit murder. They are sane in every point but that, but they are irresistibly impelled to commit murder, and the moment they have committed it they have confessed it, and expressed the greatest regret. Many have felt the fit of desire coming upon them, and have entreated their friends to confine them, to prevent them from doing it. This derangement of the feelings will sometimes take one turn and sometimes another. There can be no doubt that some have felt an impulse to destroy in a particular manner—by burning. Some have felt an impulse to destroy themselves—to commit suicide; and others, not only to murder individuals, but to murder particular kinds of individuals—to murder their own children.

You may recollect the instance of a man who murdered a very excellent gentleman and his lady—Mr. and Mrs. BONNER—at Chiselhurst, in Kent. The murderer was a footman in the family, and one night he left his room, went up stairs with a poker to the apartment of his master and mistress, and beat their brains out. He was asked his reason but he could give none. He said that he had always been treated by them with the greatest kindness, and all he knew was that he felt suddenly in the night a desire to kill them, and he supposed the devil had prompted him to the act. No other sign of insanity was detected in him, and, as at that time it was not supposed that such an occurrence could arise from insanity without other proofs of insanity being evident.

GALL mentions the case of a person at Vienna, who went to witness an execution, and was seized with a propensity to kill. At the same time he had a clear consciousness of his situation. He expressed the greatest aversion to such a crime; he wept bitterly, struck his head, wrung his hands, cried to his friends to take care and fly away. He felt the inclination, he regretted it, and entreated every one to prevent it, by putting him in prison. PINEL mentions a similar case of a man who was tried at Norwich, in 1805, for wounding his wife and cutting his child's throat. He had been known to tie himself with ropes for a week, to prevent him from doing mischief to others. One of the members of a family in London, whose maid-servant was executed for attempting to poison the whole family with arsenic, is said to have used these words—"Do, for God's sake, get me confined; for if I am at liberty I shall destroy myself and wife. I shall do it unless all means of destruction are removed; and therefore, do, good friend, have me put under restraint. Something from above tells me I must do it, and I shall." Arsenic was put into a pudding, and the maid-servant was executed for it; many persons being per-

fectly convinced of her innocency. GALL mentions that he saw a person in prison, at Friburgh, who had set fire to his house four times in succession, and after he had set fire to it he tried to put it out ; and once he seized his child, lest it should be burned. The moment he had set his house on fire he was contented, the orgasm was over.

GALL says that the first king of Sweden was always stealing trifles. Instances are mentioned of a German who was constantly pilfering, and of another who had the desire to enter the army, hoping that the severe discipline there would restrain him ; but he gave way to the desire even there, and was very near being hung. He then became a friar, with the same hope ; but he still felt the same desire, and carried all the things he could to the cell, but as he could only get trifles he was not noticed, and he went on with his propensity. You will find it related of a physician, that his wife was always obliged to examine his pockets in the evening, and restore the things she found there to his patients : he always took something, as well as his fee. MERITZ speaks of a criminal who, at the point of death, at the moment he was about to be executed, stole the confessor's snuff-box.

So the sexual desire has been so inordinately strong in some people, that it has been said that a criminal, going to execution for a rape, has been anxious to repeat the crime as he was proceeding to the gallows. I know it is so with respect to an impure mode of gratification—masturbation. I was told of an instance by a medical man not long ago. The individual was rather idiotic, and he had the desire so strong that he would entreat his family to run out of the room : he could not resist the impulse to gratification. He cried and lamented it. You see, therefore, that the definition of insanity must be twofold—that there may be an aberration of any mental power from a healthy state, with inability on the part of the patient to discern that it is unhealthy ; the man believes something absurdly wrong, but he is not aware of its absurdity. But there may be, without this or with it, an aberration of any mental feeling from the healthy state, without the ability to discern its unhealthiness, or without the power and the will to resist it.

In cases of mania you certainly may tell a madman almost as soon as you look at him ; at least, custom enables us to see madness in a man's face. The term "mania" is employed by some to signify madness in general ; but by others it is restricted to that form where there is universal madness.

The definition of insanity is twofold. It may be stated to be, *an aberration of any mental power from a healthy state, with an inability on the part of the individual to discern its unhealthiness* ; because if an individual know a thing to be absurd, he is not mad. If a person see the devil in the middle of the day, and is sure it is not the devil at all, of course he is not mad ; but if the man sees it, and believes it, and plagues you to death to believe it is a reality, provided he has been better educated, he must be mad. But this is not the whole of the disease, and not the form in which it will sometimes appear, and therefore we must add to the definition, *an aberration of any mental feeling from a healthy state, without an ability on*

the part of the patient to discover that it is an unhealthy state—or the power to resist it. If an individual have feelings so strong that he cannot control them, he is not an accountable being—he is insane. This is the definition of SPURZHEIM, and it is the best I have seen; I have met with no other that satisfies me. It is a general definition, and it includes all the forms you can give in a minute definition of insanity. I have reflected much upon it, and I think it will apply to every case.

With respect to the first part of the definition, that in which there is an intellectual aberration, it may relate to a matter of external sense, or to a fact which may be present or past, and in that case there can be no doubt of a person's insanity. If a person firmly believe something to be actually a fact, to be present, to be existent, which you know is not the case, and which all the world knows is not the case; supposing, for example, he believes that a leg of mutton is hanging to his nose, then you know he must be mad. If the aberration refer to a matter of fact that is present, you may declare him to be mad; or if it refer to something which is past, on which you are equally certain, and on which he has had an opportunity of being well informed when in his senses, you may then conclude that he is mad. If he be certain that he lived two hundred years ago, then there can be no doubt that he is mad. Supposing, however, that it does not refer to a fact past or present, but to a mere opinion, then there may be considerable difficulty. Supposing the aberration to relate to an opinion, in order to constitute him mad, it ought not to be a subject on which there is some difference of opinion, but an opinion palpably absurd to all other people in the same situation of life, or superior to him. If we did not make an allowance for education, for country, and for external circumstances, every sect in religion, for example, might consider the votaries of another sect to be mad. Every allowance must be made in a matter of opinion, for difference of education and difference of situation. The notions entertained by one nation altogether would be considered perfectly absurd by another nation. Now, if in this country a woman were to insist on burning herself to death after the decease of her husband, we should consider it insanity; but in India it is not insanity, because they have been educated to believe it proper.

DEMOCRATES was pronounced mad by the uneducated people, because he dissected a body to investigate the causes of insanity; but HIPPOCRATES told the people that they were mad, and not DEMOCRATES. If you empanel a jury to determine the madness of a person, they should be equal or superior to him. If the matter, therefore, refer merely to opinion, there may be considerable difficulty as to the sanity or insanity of the individual; and no one is capable of judging who is not equal to the individual, or even superior to him; and every allowance should be made for education, and for all external circumstances.

If we take these precautions we may disregard the complaint—that the madman was as much in his senses as the rest of the world—but the majority was against him, and therefore in custody he was placed.

Supposing, however, that it is another form of insanity—a propensity to murder, which the patient could not resist; there the great difficulty is to ascertain whether this is real or not, whether he had been giving way to some vile feeling, or had been the victim of an irresistible passion. Now, in pronouncing a person who has committed a crime, insane, as having been unable to resist the temptation, we must ascertain first, whether there has been any motive or not. If any motive can be discovered, then you may be justified in saying that the individual is a culprit—is not mad. There should, in the first place have been an evident reason for it. When persons have committed murder from an instantaneous desire to destroy, they have generally had, at the same time, some wrong notion—some imagination that induced them to commit the deed. Generally, but by no means always, where there is a deed committed there is a wrong notion; so that we have less difficulty than we otherwise should have. In many of these cases, where there has been no motive, the patient himself, as soon as the deed has been over, has actually declared that he had no motive, and has expressed the greatest remorse for what has been done. On other occasions, they have declared they had no motive, but they have laughed at the deed—considered it a matter of indifference—not concealed it, but given themselves up to justice. In other cases, before the deed has been done, they have requested people to confine them, and prevent them from doing what their feelings prompted them to do.

Now to those who attend at all to phrenology, this is not only wonderful, but considerable assistance may be derived from examining the shape of the head. The shape of the head does not shew a man to be mad; a man with one-shaped head may go mad as well as another. A stomach of one shape will be subject to dyspepsia the same as a stomach of another shape, or size. It is absurd to suppose that in insanity there must be a particular shape of the head; but it is a general fact, that if a person have any one peculiar feeling of the mind, which phrenologists believe to be situated in a particular part of the brain, and the correspondent part of the head be correspondently largely developed, there can be no question that that strong feeling will take the lead of the other feelings. To put phrenology out of the question, when a person is born, whatever feeling or passion is remarkably predominant in the individual, so as to take the lead, if the other proportions of the brain be too small, such an individual is likely to go mad.

Now, if it be a fact, that the brain in different parts is proportionate to the natural intensity of the different feelings, then that part of the head may be expected in general to be proportionately large; and if you be told of an individual who is supposed to be mad, being the victim of a particular feeling, certainly any one who attended to phrenology would examine the head, and see whether there was a large developement corresponding with the passion which appeared irresistible; and if you found such a correspondence, that would be an additional reason for inclining to the belief that the individual had been the victim of a feeling that was irresistible. This was shewn

strikingly in the case of Mr. BELLINGHAM, who shot Mr. PERCEVAL.

Bellingham was a man of weak intellect, and you will see in the cast of his head, that the anterior parts of the head are miserably developed, whereas the lateral parts, posterior and anterior, were largely developed, so that the man's passions were evidently much too strong for him to resist, and the passions particularly developed in him were pride and destructiveness. You will find in a great number of cases of insanity, that the character of the individual corresponds with the form of the head; and it may be of great use, when the question is, whether the deed has been done through violent passion, has been done by irresistible force, or the patient could control it, to examine the head. If you have other reasons to believe that the deed has been done irresistibly, it is an additional reason if you find the head peculiarly developed. The shape of the head is not to be depended upon solely, but to be taken into consideration in conjunction with other circumstances.

If a person have once sustained a real injury of the head, of course that organ is very likely to go wrong. If you find an incomplete organization; if you have no ostensible reason for the act, but, on the contrary, you have reason to believe that the man was the victim of irresistible impulse, and you know that he has had an injury of the head formerly, you would be doubly inclined to the opinion, and you would urge mercy to the judges, on account of the injury of the head. In the first place, there should be no motive for the deed. Then, secondly, it is to be considered, whether, at the moment he did it, he confessed that he had no motive, and gave himself up to justice. In the next place, whether the patient may not have been quite indifferent to the deed; had no motive, and not been aware that he had done any great injury. In the next place, whether this has come on in a paroxysm, and the patient has been aware of it, and wished to be confined. Then, if there be an agreement of the head with the passion; then, if there be insanity in the family, or the individual have been previously insane, or there have been other diseases of the nervous system, as apoplexy or paralysis; under these circumstances the individual is mad in the vulgar phrase, but he is not mad legally. In many of these cases, however, there is not such great difficulty, because you can easily make out the existence of some fancied motive—some wrong idea has generally been observed.

Although legally speaking, it is quite necessary to prove that a man has been wrong in some of his notions, either relating to facts present or past, or in some matters of opinion, although it is necessary to prove that he is absolutely deranged on that one point, or that he is the victim of some one irresistible feeling—to say legally that he is mad; yet pathologically we may say, that a great number of people who are at large, are mad; a great number of people at large are in any thing but an healthy state of the brain. They have one feeling too strong, or they have a ridiculous notion upon some point, but it is so slight that it does not disqualify a person for carrying on the affairs of life. But, pathologically speaking, a large number of peo-

ple are more or less cracked, who go about: legally speaking, however, a man ought certainly to have a mental power in a state of aberration from a healthy state to such a degree as to disqualify him from conducting the ordinary business of life; or be the victim of some strong feeling which leads to the injury of others or of himself. If it be a mere matter of opinion only, on which a person is pathologically speaking, mad; as, for instance, supposing an individual has an unfounded fear of disease, and a fear of death, we call it merely hypochondriasis, and it does not justify us in calling him mad. If a man who has nothing the matter with him, because he coughs twice a day, is satisfied he is in a consumption, and because he spits a drachm of mucous in the twenty-four hours, is satisfied that he is rotten in the lungs, or full of abscesses, this is a morbid feeling; but as it would not lead to a criminal act, or to any act which is dangerous to others, we do not say he is mad, we only call it hypochondriacal; but the nature of the thing is exactly the same. Some will not dress as other people dress; some will not eat as other people eat, and they will do a number of things more or less extravagant; but because the degree is less, because they do no act which is injurious to others, we do not call them madmen at all; they merely pass as eccentric individuals; but some one in the family will carry his eccentricity to a higher pitch, and then it is necessary to shut him up: it is absolute madness. Suppose he squanders all his money away, not for the gratification of a particular feeling, but in a way which is quite contrary to what other people do; or supposing that he inflicts punishment upon himself, and attempts to murder himself or others, or commit depredations on the property of others, we are not justified in saying legally that he is mad, although medically, we are quite satisfied that he is in an unsound state.

But although it is necessary, when treating a person alive as a madman, to use all these precautions, and to be perfectly satisfied that the individual has done deeds not simply injurious, but *criminally* injurious to himself and others; yet, when a person is dead, there is an end to it, and we are allowed to incline to this opinion on much more general grounds than we otherwise could. When a person is alive, of course it is a serious thing to treat him as a madman, and, whatever his eccentricities may be, we are not allowed to say that he is legally mad, unless he does things criminally injurious to himself or others. If he be guilty of such acts, we may be justified in saying he is mad. But, suppose he is dead,—suppose he has destroyed himself, then we are allowed on the slightest grounds whatever, if he have merely said a word or two of nonsense, to say that he is legally mad. When a person has committed suicide, and the act cannot be committed again, then the least probability that the person was mad is admitted by law. It is mercy in the other case, where a person is alive, which induces the law to compel us to give evident proof before we say a man is mad, because it would be cruel to confine him without; but when a person is dead, it is necessary to prevent him from being treated as a self-murderer, and it is a mercy to make it appear as much as possible the result of a morbid state of

mind. There can be no doubt, that many criminals are not called mad who really are so. I have no doubt that thousands have been executed unjustly, whose crimes were the result of insanity.

There may be extreme difficulty sometimes in ascertaining that an individual has any absurd belief at all; and there is a difficulty on the other side of the question respecting this absurd belief. Occasionally it is almost impossible to ascertain, whether a man is mad from the cunning of madmen. When persons are mad, they frequently have sufficient cunning to deceive any one who is not thoroughly acquainted not only with the habits of madmen in general, but with the belief of the particular individual.

"I well remember" (says Lord **ERSKINE**) "that since the noble and learned Judge has presided in this court, I examined, for the greater part of a day in this very place, an unfortunate gentleman who had indicted a most affectionate brother, together with a keeper of a madhouse at Hoxton, for having imprisoned him as a lunatic; whilst, according to his evidence, he was in his perfect senses. I was, unfortunately, not instructed in what his lunacy consisted, although my instructions left me no doubt of the fact; but not having the clue he completely foiled me, in every attempt to expose his infirmity. You may believe that I left no means unemployed which long experience dictated, but without the smallest effect. The day was wasted, and the prosecutor, by the most affecting history of unmerited suffering, appeared to the judges and jury, and to a humane English audience, as the victim of the most wanton and barbarous oppression. At last, Dr. **SIMS** came into court. From Dr. **SIMS** I soon learned, that the very man whom I had been above an hour examining, and with every possible effort which counsel are so much in the habit of exerting, believed himself to be the Lord and Saviour of mankind; not merely at the time of his confinement, which was alone necessary for my defence, but during the whole time that he had been triumphing over every attempt to surprise him in the concealment of his disease. I then affected to lament the indecency of my ignorant examination, when he expressed his forgiveness, and said, with the utmost gravity and emphasis, in the face of the whole court, 'I am the Christ;' and so the cause ended."

Besides the varieties of insanity, the variety of absurd notions—besides the variety of degree, and the absolute extent of this absurdity—the person being absurd on one notion, or on every thing, from having little intellectual power left, or very little perception on a point—besides the variety of the native characters of individuals independent of their sanity or insanity, and the variety that must exist as to the derangement of feeling, as well as an excess or defect of feeling—there are many other circumstances which occur in insanity. The head, for example, is frequently hot, both in the various paroxysms and at the commencement of the disease. You will frequently observe the urine, both in the various paroxysms and in the commencement of the disease, to be red; the pulse to be quick and full and firm; the eyes and cheeks to be red; in fact, there is more or less of an inflammatory condition of the head.

Then you will have pains and all kinds of odd sensations in the head—cracking, bursting, twitching pains of every description. You will hear insane persons speak of flashes of light, of double vision, of noises in their ears, and nothing is more common than deafness—deafness is the most common disturbance of the external senses in mad men. Sometimes there is a depravation of smell; they will fancy there is some intolerable stench around them, and they will speak out of their nose. I believe mad people are generally very fond of snuff. The integuments of the head, especially the posterior, superior parts, are often loose and spongy, so that if you gather up the scalp, you will find it fuller than usual and loose. The breath is very offensive, and some say there is a peculiar smell of the body. The tongue is very frequently foul, and the mouth is filled with a viscid mucus, so that madmen are constantly endeavouring to spit it out. I presume there is a depraved habit sometimes of spitting about, and making things dirty; but, besides that, I have no doubt that the tenacity of the mucus is frequently a cause of it—it causes an unpleasantness which the patient attempts to remove by hawking and spitting. Some spit constantly in this disease when it is not intense. You will sometimes observe extreme appetite and extreme thirst; but sometimes there is an absence of both hunger and thirst—the patient seems to have no desire for either food or drink. Costiveness is very common in the disease; and sometimes you observe great muscular strength—so that an exertion is made far beyond what is possible in health. Sometimes insane people scarcely sleep at all; they will pass many days, perhaps weeks, without any sleep of consequence, sometimes without any sleep at all. Occasionally, too, there is a great resistance to external cold, but this is by no means universal; for many insane persons, through this notion, have been left to themselves, their extremities have mortified, and they have died. Now and then, however, there has been observed an extreme insensibility to cold, so that they have exposed themselves to frost and snow without suffering from it in the least. There is apparently even a great insensibility of the external senses, but this principally arises from the abstraction of the mind which is kept up in general within, so that the patient does not attend to what goes on around. Now and then the external senses, I presume, are diminished; for there is an extreme insensibility to cold, and frequently deafness. On the other hand, however, extreme sensibility has very often been noticed in the disease. Sometimes you will observe a sort of stupor, and this is not constant, but comes on occasionally in the disease. There are often various other diseases of the brain, such as epilepsy, paralysis, hysteria, catalepsy.

Insanity sometimes begins suddenly, and this is particularly the case where the insanity relates to a propensity. Persons have sometimes suddenly been seized with an irresistible propensity. That form of insanity begins often suddenly, but in other forms where there is an absurd notion, or where there is general delirium, it may begin suddenly; but for the most part, insanity is ushered in by an oddity of manner and behaviour. There is a great degree of loquacity noticed, persons talk much more than they are accustomed to do, and

will burst into foolish fits of laughter. On the other hand, they are sometimes previously observed to be very taciturn. On other occasions, persons before the disease, are observed to be extremely passionate; in a different state as to temper to what they are accustomed; and some, instead of being passionate, are sulky. Some are extremely civil: I have known such civility that you would fancy that the person was going to eat you; they will beg you to stop to dine, when you have dined; they will beg you to stop to supper, and then to take a bed. Frequently too there is a quickness of manner, there is no loquacity, no civility, but a hurried way of doing every thing; and frequently there is observed a want of a proper attention to their affairs: they do not take the same interest in their affairs that they did before. Again, this disturbance of feeling is frequently observed before the full formation of the disease; there is a want of affection to relations and friends, and more or less a change of general habits. These are the chief circumstances which precede the full establishment of the disease when it does not come on suddenly. In regard to the continuance of the disease, it will vary from a few weeks to the rest of the individual's life.

The disease very rarely occurs in children comparatively. The unsoundness of intellect in children is generally idiocy. Children have very weak passions; they are very little influenced by external circumstances before mixing with the world and forming connections, and of course their passions are little liable to be unfavourably excited, and they have much less intellect than adults; so that altogether they are much less subject to insanity. Still, however, children may be insane: although their soundness is usually idiocy in various degrees, yet, occasionally, they are insane. Dr. Haslam gives a case of insanity in a child, and so does Mr. Greenwood. I think I have seen several instances of this, where it has been characterised by no delusion, but by very violent rage. But although insanity may continue during the rest of the patient's life, it sometimes has remissions, and even intermissions.

People are not only much less mad at one time than another, but sometimes they are not mad at all. Now these intervals of sanity are called *lucid intervals*: but for the most part a lucid interval is nothing more than the diminution of excitement. The patient is not less mad, but he is less violently excited than before, and therefore it is fancied that he is sound; but in a great number of these cases you have only to touch the string, and the madness shews itself again, the patient being only more tranquil, less evidently mad than before. The greatest caution is required in believing that a person is in a lucid interval, that is, in believing that a person is in an intermission of the disease. Occasionally the disease is not only intermittent, but periodical. I was once shewn an individual in a madhouse, who was said to be deranged every three years for a certain time. I was applied to by a patient in 1814, and as the case struck me, I made a particular note of it. He was 41 years of age, and five years before a stone had struck him on the temple. The following and three subsequent years, in the month of March, he had paroxysms of laugh-

ing, yawning, stretching, convulsions, the secretion of urine was sometimes copious, and sometimes scanty; there was great vivacity of spirits; he spoke and believed all sorts of absurdities, and at that very time also his bowels became costive, though at other times they were freely opened. This was an instance of insanity. He was only mad in March. The disease evidently arose from the blow inflicted on the temple five years before.

The disease will sometimes intermit alternately with other diseases. It has been observed to alternate with disease of the lungs. I was once, when a student, shewn a patient in Guy's Hospital, who died of phthisis, and I understood that he had been previously deranged; that as soon as derangement ceased, phthisis began; but before that he was considered phthisical: whether he was in a state of phthisis, I cannot say. The stethoscope was not used then, neither was the ear, but he was considered in a state of phthisis; he had pectoral symptoms: the insanity ceased, all the pectoral symptoms increased, and he died. Insanity may exist for a long time, and then cease. Dr. Rush mentions a case of recovery after nine years, and he speaks of spontaneous cures after eighteen or twenty years. He only speaks of them but in one case he witnessed recovery after nine years' duration. Very often, however, insanity terminates in fatuity, and when it so ends, the fatuity is called *dementia*. Idiocy, fatuity, and dementia, I mentioned were in reality the same thing; but if idiocy come on in after life, it is called "fatuity," and if fatuity be the consequence of insanity, it is called "*dementia*." But it is to be remembered, that if madmen live to be old—and some live to be very old—their mind, deranged as it is, must decline in the course of nature, just as the minds of sane people decline, just as all our minds will decline; and therefore one can hardly say that insanity has produced dementia, for the insane mind must fall into second childhood, exactly like the sane one. The disease, however, very frequently terminates, or is joined at last, by palsy, or perhaps by apoplexy, which proves fatal.

Mr. Tuke, in his account of the patients at the Retreat, near York, says that there were eleven patients there, between sixty and seventy years of age; four, between seventy and eighty; and one had arrived at the age of eighty-seven: yet upon the whole there can be no doubt that insanity shortens life. If a person in insanity live to a great age, it is lucky or unlucky for him, but in a great number of instances such persons do not live to be very old; just as is the case in connate idiocy. Persons who have considerable idiocy generally die before they arrive at the middle period of life.

MORBID APPEARANCES.

When persons die of insanity, you, for the most part, find nothing sufficient to explain the symptoms. There is perhaps, an appearance of disease in the head, especially if the person die early, and you inspect him at the moment of death. But it is to be remembered, that although frequently nothing is to be found to explain the symptoms, yet very few brains are dissected in a proper manner. Most persons

run over an examination of the brain quicker than any other part : it takes so much time to open the head, that the rest of the business for the most part is hurried over, and many who do examine the brain, are not qualified for such an examination. Notwithstanding all this, however, there can be no doubt that little or nothing is frequently found in the brain of insane persons, just as is the case in the stomach in dyspeptic people. If you open the stomach of a dyspeptic person, in the greater number of cases I will be bound to say you could not tell the organ from that of other persons who have died with an excellent digestive apparatus. After pure asthma, you cannot tell that the individual had been subject to the affection. But this is no argument against the disease being an affection of the brain. A disease may be corporeal, and yet the disease itself may not be structural—no affection of any organ may take place. It does not follow, because we say insanity is corporeal, that it is not a disease of the mind ; we know nothing about that, except as to this world, and it is with this world that medical men have to do. It is a corporeal disease, but that does not imply that it must be a change of structure ; a change of function may be quite sufficient. In diabetes, which destroys life, I have opened bodies over and over again, and not seen any thing to shew me that the person had had organic disease. Again, you may conceive that this most take place if you consider that individuals have been mad for years and years, and just before death they have recovered completely. Dr. MARSHALL mentions a case where recovery from insanity occurred a few hours before death. Now if the disease had arisen from a structural affection of the brain—if the brain had been so disorganized that it could not perform its functions, of course such an event would not have occurred before death. But you have proof enough of there being cerebral affection, to say nothing of the occurrence of the disease itself, because it proves itself to be a cerebral affection as much as dyspepsia proves itself to be a disease of the stomach. But you may have anatomical proof in these cases ; for when the disease has continued long, you generally find some mark of disease in the head ; you do not find any thing to explain the insanity, but you find something that shews there has been suffering in the head. For example, there is often fluid in excess in the brain or upon the brain, or the membranes of the brain are thicker than usual, or they are opaque ; and the bones of the head are very frequently thickened likewise. The external table remains in its proper situation, but the diploe between the two is increased, a deposition takes place there, and the bones become thicker, and not only thicker, but sometimes they acquire an ivory hardness. Now insanity is not situated in the bones of the head, but when you see that there is such thickening, and you see that the membranes are thickened, and effusion is found in the membranes, then it shews that the head has been suffering.

GALL mentions that he found in many suicidists, in fact he says always, and frequently in great criminals, where there was no efficient reason for the action—where criminals had been influenced by violent feelings only, the bones dense and thick. GREEDING mentions, that

in 216 maniacs, he found the bones of the cranium very thick in 167. In 107 furious maniacs, he found in 68 that the bones of the cranium were very thick. Out of 30 imbecile individuals, he found the bones of the cranium very thick in 22. GALL mentions another interesting fact, and that is, that in the extreme old age of maniacs, the bones may grow thin again just as they do in sane individuals. Of course, besides these appearances, you may find various diseases in the brain itself; but you must not be surprised if, in cases which are not of long standing, you do not find any disease at all. If the case be of long standing, and you find the bones diseased, you may also find disease of other parts. I had a case which occurred in a woman who had a disposition to injure herself, and there was violent pain in each ear. She was deformed, and laboured under chronic bronchitis. She was placed near a window, caught cold, and died suddenly. After death, over each ear, there were strong adhesions to the dura-mater, and the brain itself just over the part was in a state of vascularity. You may in insanity find different parts of the brain more or less inflamed, and the appearances which inflammation more or less induces, such as thickening and softening, and various organic affections, just such as you would *a priori* expect. I may mention in connection with this remark, that over the parts which are particularly excited, you will frequently find the temperature higher than at other parts of the head. Nothing is more common than to find one part of the head hotter than another. If we have been studying for some hours, we feel the temperature of the forehead to be much hotter than it is either at the top, the back, or the sides of the head. So, when persons' feelings are excited in insanity, you will find that a local increase of temperature is frequently induced. In regard to the causes of insanity, they of course are predisposing and exciting, just as is the case with other diseases.

I should think there is no disease to which the human frame is subject, which can be so hereditary as insanity. When I say disease, I mean disposition to the disease, because if a person do not have a disease break out till he is 30, 40, 50, 60, nay 70 years of age, yet if the disposition to it be given to him by his parents and ancestors, we say it is hereditary. That is the ordinary mode of speaking; but some people object to this word hereditary. It is a mere quibble to limit the word hereditary. But insanity, in a large number of cases, is hereditary. It seems to require more of dilution, more crossing of the breed, than any other affection; for it comes on in third and fourth cousins, and although it has disappeared in one generation, it so frequently returns that there is the greatest danger of its arising in almost every other descendant. Scrofula, gout, and various things, will cease by good management and by favourable circumstances; but as to the disposition to insanity, it is certainly one of the most undilutable, if I may use the expression, imaginable. The importance of attending to the existence of insanity in families has been very much dwelt upon by some writers. Dr. SPURZHEIM, among others, has written on the subject; but it is just as well dwelt upon by BURTON, in his *Anatomy of Melancholy*. I think it sin and wickedness to

marry a person in whose family there are many instances of insanity, and it is appalling to read the accounts of deaf and dumb charities, and blind charities, where you see individuals have married, and have produced child after child deaf and dumb, and child after child blind. I think, when one or two children have been produced blind or deaf, that it is wickedness for procreation to be continued. You will see sometimes as many as six children born deaf or blind in the same family. I should think it would be desirable, under such circumstances, to ascertain, if possible, which of the family the disease arose from, and that divorce would then be very allowable, so that only one should be deprived of such a luxury.

Dr. BURROWS says, that six cases out of seven in his private practice were of an hereditary nature. In the Salpêtrière, there were 320 female lunatics, 105 of whom had the disease hereditarily. Out of 264 cases, treated by ESQUIROL in his private practice, 150 were hereditary. Where insanity is hereditary, it is very common to see other members of the family not deranged, but with some nervous disease or other. Where one is insane, another is frequently a little odd in his manner, odd in his thoughts, but not sufficiently so to be called deranged. Where there is insanity in a family, you will observe some individuals with very strong feelings, but yet they do not overbalance the mind.

INSANITY CONCLUDED.

Among the frequent causes of the disease, are what are termed moral causes, that is to say, violent excitement of the feelings, but these for the most part are innocuous unless there be hereditary predisposition. A person will bear the most violent excitement from external circumstances in general, unless there be a predisposition to the disease. We every day see persons suffer the greatest reverses, suffer the most dreadful privations, suffer the severest bereavements of those who are dearest to them, so that they are overwhelmed for a time, but they are not ruined in mind for ever. There must be a certain weakness of mind, or a bad constitution of mind, or an ill-regulated state of mind, or a disposition to insanity in general, for these causes to take effect; at any rate, the mind may be so strong, the faculties may be so well formed, and they may all be so well balanced, that the strongest moral causes will not upset the man. With regard to moral causes, it is said that joy has excited insanity more frequently even than grief. Human nature seems doomed to suffer; most of us every day of our lives suffer something or other, little or much, and human nature seems more capable of enduring grief and sorrow than it is to bear joy. There can be no doubt, I think, that one predisposing cause to insanity is an excessive partial development of the brain. In many persons who are deranged through the feelings (and the greater part are deranged through the violence of their feelings), certain parts of the brain are more developed than others, so as to be more than a match for the rest of the head, and they have suffered such a strong excitement as to have overbalanced the powers of the mind. This you will see in a great number of cases. I believe where there is

mental delusion, in most cases it arises from some strong passion. When a man fancies himself an emperor, it is on account of the excessive developement of self-esteem; the delusion generally springs from the excess of pride. When a person is convinced that a conspiracy is formed against him, that attempts are made against his life every day, or that attempts are meditated, believing things which have no reality whatever, seeing demons coming to destroy or injure him—it is generally from an over-excitement of the depressing passions; that is to say, his fear has got the better of his pride, and, being under the influence of fear, he afterwards becomes the subject of delusion.

There can be no doubt that long application to one particular point is occasionally the cause of insanity. If a person dwell upon one idea, one point, intensely, so as not to employ the faculties of his mind at large, and employ all the feelings (it was evidently intended by Providence that we should employ all the faculties with which we are blessed—not merely that we should use one arm, but both; not merely one leg, but both; not one faculty of the mind, but all in their turn, so as to strengthen the whole and enjoy every feeling of the mind, as well as every intellectual faculty,) if one only be engaged to the exclusion of the rest, and if ideas of one kind are not counter-balanced by ideas of another, the person may at last persuade himself of any thing, and become mad.

Insanity has frequently been excited by fever and common inflammation of the brain. It has been excited by heat applied to the body at large, but particularly to the head. What is called insolation has frequently made men mad. Mechanical injury, as you may readily imagine, has produced the same thing. An instance is mentioned of a foreign surgeon having trephined a man for a large wound of the temporal bone, and when the wound was healed, he could not refrain from stealing. He was an honest man before the operation. The surgeon was satisfied that it was the result of disease, and got the man liberated from prison. He was more than an ordinary surgeon; he was something of a philosopher.

You know that during labour women are subject to such an irritation of the head, and of the spinal marrow I presume, but at any rate of the head, as to fall into insensibility and convulsions, and so puerperal women frequently become insane, and they become insane in general from the third or fourth day after delivery up to the fourteenth or fifteenth day; and now and then they will become insane during suckling. Dr. GALL states, that he knew four women who, in pregnancy only, had a desire to steal. They had a local or partial insanity, and not as we usually see it in the puerperal state—a general insanity. I think old age has a tendency to produce insanity, and there it is in general insanity of feeling. The intellectual faculties decline when we grow old, and the feelings frequently fall into a state of excitement. I have frequently seen old men whose intellectual faculties have become much decayed, become exceedingly passionate, suspicious, and at last delirious, totally unlike any thing they were before, and in such a state that I consider it madness. Excess of all kinds will of course induce this disease. Sexual indulgence is

always enumerated among the causes of insanity ; but very frequently I have no doubt, that excessive sexual indulgence, as well as improper indulgence, is the result of a morbid state of the brain itself. I have no doubt that a great many who indulge in sexual pleasures, beyond what is intended, think of nothing else, run riot every day, do so through a morbid excitement of the head—a diseased state. They live in indolence, and not having any thing else to do, they select this as a good occupation. I have no doubt that many persons indulge in this way till they go mad, but I am quite satisfied that that is not always the case, but that the state which ends in insanity has originally produced a violent excitement in that particular direction.

Persons have gone mad from the drying up of an ulcer or an issue, and the disease has sometimes arisen in the way of metastasis. When a disease has disappeared, to which a person has been long accustomed, insanity will occur. I have seen it come on after gastrodynia, and it is said to have occurred sometimes after itch and other diseases. It is merely a disease of the brain, and therefore persons are subject to all other affections. Disease of other parts, on the other hand, will sometimes impede this disease. Diseases of the liver and intestines will sometimes produce a sympathetic excitement of the head, which occasions insanity. You will find some physicians say, that the devil, or demons which are not devils, are the cause of the disease. You will find in sound writers instances of the disease being produced by the devil. HOFFMAN and SAUVAGES state that signs are produced by demoniacal agency.

DIAGNOSIS.

There can be no doubt that in insanity there frequently are signs of inflammation, that there is pain and heat of the head, that there is quickness of pulse, thirst, a dry and foul tongue, high-coloured urine, and a throbbing of the temples, just as in delirium—the delirium of inflammation. But, in the first place, insanity is a chronic disease, whereas phrenitis and fever are not ; and, in the next place, although there are these symptoms of inflammation of the brain in insanity, when it first begins, so that you may be in doubt as to whether it is phrenitis, common inflammation, or not, yet you have this criterion—that the insanity is out of all proportion to the signs of inflammation. In insanity you have no signs of inflammation at all, so that you can have no doubt as to its not being a case of inflammation of the brain ; but in insanity you frequently have signs of inflammation ; but then, if the disease be what we call “ insanity,” the aberration of the mind, and the violence of the feelings, are out of all proportion to the inflammatory symptoms. The state of the brain may be much the same, and there may be something of quibbling in it, but the distinction is important ; because, if there be decided inflammation of the brain you may set to work according to the strength of the patient, and, by antiphlogistic measures do great good ; whereas, if the signs of insanity be out of all proportion to the signs of inflammation, and you think that it is a mere case of phrenitis, you will in general do great harm. Antiphlogistic measures are generally very useful in the

beginning of insanity; they are very useful when there are more or less signs of inflammation; but if the signs of an aberration of mind be out of proportion to the signs of inflammation, I believe you will do serious harm; indeed, if you go boldly to work, and think that it is a case of inflammation, then frequently antiphlogistic measures will cause the patient to sink, or they will perpetuate the disease—make it permanent. It is of importance to consider whether the signs of inflammation and the signs of insanity are in proportion to each other. If the latter be only in proportion to the former, the case may be treated as inflammation. Your diagnosis also will be assisted by knowing whether the individual has ever been insane before, and whether there is insanity in his family, because, if these circumstances do exist, and if you think it is more than inflammation of the brain—if you think that disturbance and inflammation are co-existent, and not one dependent upon the other—then you must not have recourse to antiphlogistic measures.

As to the delirium of fever, it is generally easily known from the peculiar hollowness of the eyes, from the vomiting, the extreme loss of appetite, the pain of the loins, and so on. One cannot easily mistake a case of this description, and when delirium afterwards comes on, if it be violent, it is in proportion to the signs of inflammation; and if it be not violent, if it be muttering delirium, then it is in proportion to the sinking of the patient, the fluttering state of the pulse, and the typhoid symptoms.

Now, if it be feigned madness, people go to sleep, they cannot keep themselves awake, as madmen frequently do. Madmen frequently sleep regularly, but frequently they can do for a long time without sleep; but where the disease is feigned, persons cannot hold out, neither can they desist from eating or drinking, as madmen frequently can; and the pulse is frequently not affected, at least if you can confine them, so that they cannot gain access to stimuli. Madmen will rave for days and weeks without stopping; whereas a person who is feigning madness, generally raves violently, because he considers it an important feature of insanity, and the consequence is, he cannot continue it. Supposing, however, that the patient does not affect mania, that is to say, general insanity, derangement on all points, but affects monomania, attempts to be mad only on one point, he generally, I believe, overdoes it. There is some overt-act, or some sort of inconsistency; they do not support the character well: they are not aware of all which they ought to do.

There is, therefore, I think, no difficulty in establishing the diagnosis, as to whether it is phrenitis, or fever, or insanity, or whether it is a case of feigned insanity or not. The difficulty is to ascertain whether a patient is really mad when he pretends not to be so: the difficulty is not to prove cases of *morbi simulati* but cases of *morbi dissimulati*, where the disease is not pretended, but the patient pretends not to have it.

PROGNOSIS.

If there be hereditary tendency to the disease; if there have been an

injury of the head ; or if there be a peculiar organization of the head ; or if there have been previous attacks of the disease, recovery is not the less probable, but relapse is the more probable. Such persons do not less easily recover than others, but when they have recovered, they may easily fall into the disease again. I believe that the prognosis is rendered more favourable by the individual in whom the disease occurs, being neither very young, nor in an advanced life, but in the middle period of existence. The more violent the exciting cause, the more favourable will be your prognosis, because, if the exciting cause be very slight, if a small spark have excited a great flame, you may suppose that the person is strongly disposed to insanity ; whereas, if the exciting cause be very violent, you may suppose that there was but little disposition to the disease ; but the violence of the cause was every thing. Mania, general excitement of the brain, general delirium, general violence of feeling, affords a more favourable prognosis than a monomania. Mania is a general disturbance of the whole head, and it is more corrective than a fixed disturbance on one point. It appears to be more of the nature of an inflammatory state of the brain, and inflammation is more easily recovered from than any thing locally fixed, where the patient dwells upon some one particular point. Dementia, or that weakness of intellect which follows insanity, affords the least favourable prognosis ; for the brain is generally in such a state of inexcitability that it seldom recovers its power, and of course the prognosis is less favourable. If a person have epilepsy, or other diseases of the nervous system, recovery is rare. The longer the disease has existed, the less chance is there of recovery ; the more acute, the more transient, is sometimes the disease.

Those cases which occur in a puerperal state, recovery is more frequent than not. The prognosis may generally be given favourably, when the patient has fallen into the disease, either after delivery, or during suckling.

TREATMENT.

The treatment of insanity is generally divided into two kinds, like the causes, moral and physical ; and the physical again is divided into two kinds,—first, antiphlogistic measures ; and then, in the next place, soothing measures. When the case is recent, and there are phrenitic symptoms, the remedies for inflammation within the head are to be adopted with more or less vigour ; or when the case is not recent, but we have similar symptoms during any period of the disease, the same measures are to be more or less adopted : generally speaking, however, antiphlogistic measures are not very admissible. It is found, in the greater number of cases, when blood is taken away it is neither buffy nor cupped, and the majority of cases treated actively, as phrenitis, do not turn out so well as those in which such treatment is not adopted, or in which such treatment is adopted with very great moderation.

In the beginning of the disease, very frequently a certain extent of blood-letting is proper, together with a certain degree of purging and ptyalism. The exhibition of tartar emetic, for example, in large doses,

so as to produce a state of nausea and depression of the system, may be serviceable. But you may be guided in the employment of these measures by the state of the patient; by the recency of the occurrence: by the state of the constitution at large; the strength and character of the pulse. You must remember, that, whatever signs of inflammation there may be, the disease is not necessarily of an inflammatory character, and that it is much the best to adopt moderate antiphlogistic measures, and such measures as will not greatly depress afterwards. Among these, the application of cold to the head is one of the best. The application of ice is often much more effective than bleeding, and it is not attended by such subsequent depressive effects as bleeding. You must be very much on your guard, indeed not trust to bleeding too much; and of course, when the disease has existed any time, if a fit of violence come on, it is very rarely to be treated by blood-letting, but you must apply cold, and remove as much as possible, all stimuli. We have sometimes a very different state from that of inflammation: frequently there is great excitement of mind, great aberration; but while the mind is in a state of high excitement, the pulse is of a weak character, perhaps very rapid, and it is clear, from the whole state of the patient, that you must not adopt depressing measures, but, on the other hand, stimulants and narcotics are the most useful. You will frequently see, in this disease, where there is great irritation, a weakness of pulse, which easily proves, to an experienced person, that the case is not of an inflammatory nature, perhaps not the least so, but a case of irritation, and it is to be treated by cold, in the form of ice, or cold water, or a shower-bath, and frequently by good nourishment and narcotics. Cold lessens the morbid irritability of every part of the body. Now and then both plans, of course, may be very moderately conjoined, just as in the treatment of inflammation; but you frequently see patients in so great a state of excitement, in mania, that they will not bear more than the application of ice to the head, and moderate purging, and you may find benefit by the administration of a certain portion of wine, or, what answers in general still better, a certain portion of porter and good strong malt liquor, together with nutritious food. As to narcotics, the morphia has been found of late to answer much better, in a great number of cases, than opium. I have seen persons soon sent to sleep in this state by a large dose of camphor—a scruple of camphor given every three or four hours.

It is necessary, not only at the beginning of the disease, but at its crisis, to prevent the patient from falling into an inflammatory state of the head, and, on the other hand, it is necessary to keep up the strength, not to allow him to sink into a state of debility and irritation, and you will find moderate antiphlogistic measures the only ones, on the former side of the question, and nutritious food, the moderate administration even of stimuli, together with narcotics, very serviceable, on the latter.

I need not say it is necessary, in all cases, to remedy any other disease that may be present. If you find costiveness, remedy it; if you find vomiting, remedy it; if you find chronic hepatitis, or disease of

any other part of the body, get rid of it, if you can, for in most instances it will only exhaust the patient so much the sooner, and, in fact, irritation in one organ frequently keeps up irritation in another. Now and then cases occur of mania being suspended by the production of another disease; but these instances are comparatively rare. If the new disease were but slight, it might be well to let it run its course—supposing, for example, it were only the itch,—but if there were any serious disease, I should consider it your duty to cure it, at any rate to lessen it as much as possible, because the insanity could not do more mischief than it.

It is of course necessary not only to remedy any diseased state that may exist, unless it be clearly beneficial to the mind, and at the same time clearly not injurious to the body, but it is necessary to support the health as much as possible—to have him as much as possible in the fresh air, to observe the most perfect cleanliness, and to take care that all the food he takes shall be of the best quality. Warm and cold baths are found very useful; but it is in melancholia that warm baths answer best. The cold bath, in most cases of insanity, when patients glow after it, is an exceedingly useful measure, and in violent paroxysms a cold shower-bath, continued till the patient is pretty nearly overpowered, has often a beneficial influence: as a means of remedy in chronic cases, also, the shower-bath is one of the best things that can be employed.

The most violent fits of insanity, the greatest paroxysms of rage, will cease in general for a time spontaneously. It was the custom of PINEL, to let patients spend themselves, to let them rave away, being certain that after a time they would be quiet again. But for the purpose of suppressing the violence, when it is too long continued, some practitioners have recommended a rotary machine, in which you set the patient upright, and spin him round as fast as possible, till he is sick and giddy, and be reduced to repose. In that way, a maniac, like any body else, will be rendered pretty quiet. It has been recommended to lay the patient horizontally, with his head at the centre, and spin him round in that position, so that the blood might reach from the head to the centre by the centripetal force. I have seen it put in practice in lunatic asylums abroad, and the patients spun round as fast as a tetotum, and it is said with the effect of quieting them.

The hot bath and the cold have been had recourse to, sometimes together. If the patient be placed in the hot bath, and after a short time a stream of water be allowed to play on the head, descending for about three feet, till the head be thoroughly cold, it is said to be very beneficial.

The medical treatment is for the most part adopted for the purpose of lessening any urgent symptoms at the time, and for the purpose of preventing mischief; but in regard to curing the disease, I believe physical treatment in the greater number of cases is not very efficacious. We may do great good by means of it; we may prevent an inflammatory state of the head; we may support the constitution: we may do great good by cooling the patient, procuring him sleep, maintaining

his general health, removing diseases in other parts of the body, re-exciting a suppressed discharge, preventing additional mischief, and lessening urgent symptoms.

MORAL TREATMENT.

If patients be not universally insane, but have any mental faculties left in a state fit for occupation, it is exceedingly serviceable to employ them. A pleasurable occupation is exceedingly advantageous, not only as contributing to the happiness and the comfort of the patient, but in withdrawing him from insane ideas. By this means persons have frequently had their insanity very easily subdued.

A large number of maniacs who have no intellect left for any pleasurable mental occupation, and many, who in their senses knew not what intellectual delight was, may still derive great pleasure, as well as great improvement of health, from bodily exercise. Nothing is found more useful in the treatment of lunatics than to give them things to do, and more especially to make them work in gardens, and occupy themselves continually in the open air, with bodily exercise.

It has also been found of great use, not only to maintain activity of body, and cultivate those faculties of the mind which are still entire—to make the most of what is left, but also to interest the feelings. This has been found particularly the case with females. You should give them animals to take care of; the tender feelings are excited, and a constant interest is kept up. This has been found in many instances of very great use. Whatever their station in life may be, by giving them bodily exercise, you maintain the general health, you withdraw their attention from madness to reason, and in some degree create a pleasant state of mind. This may be done by mental occupation, as well as by bodily exercise. One great point is, to produce a pleasurable state of excitement, and in conformity with this, it is necessary to make them as happy in all respects as possible—to treat them with the utmost kindness, never to have recourse to severity, except in severe cases, and never to have recourse to cruel punishment, or to any thing which can border on cruelty. No stripes nor corporeal punishment ought ever to be adopted. Till modern times, the chief treatment of insanity consisted in cruelty.

There should be the mildest restraint possible. Of course restraint is sometimes very necessary, because some patients are mischievous, and they will not only tear to pieces every thing they can, and do whatever mischief they can, but they will commit murder—will murder themselves or others. I believe, at a lunatic asylum, where the greatest attention is employed, there the greatest gentleness is found admissible; for the more cruelly you behave to lunatics, the worse they are. Where the keepers of lunatic asylums are benevolent, use no more restraint than is necessary, and especially using restraint in the least offensive manner, there you find the patients nearly all quiet, and a very small number indeed require corporeal restraint. If punishment be necessary for having done amiss, patients ought not to be flogged on the posteriors, but confined for a day, as a child would be, and told that is the punishment for their having done amiss;

and it is certainly right to be firm in all this ; never to threaten punishment, and then not put it in execution. A maniac would soon find out this mistaken lenity, and take advantage of it. The utmost that is required, is to deprive them of any pleasure which they are accustomed to have, for a little time, as a punishment, or to employ a little more restraint than usual.

There should be nothing about the individual, of course, to remind him of the circumstances connected with his insanity. Hence it is found useful in most cases, as a general rule, that the patient should be removed from his friends ; for the circumstances connected with his insanity will of course present themselves, if the patient see his friends frequently, or remain in his own house. In the next place, it is very necessary that there should be nothing dangerous allowed to be in the patient's reach. There are various degrees of insanity, and many patients may be trusted with things that might do harm. The windows should be well secured, and the patient should have no opportunity whatever of doing mischief, because lunatics are very cunning. Bars, however, should be so placed before the window as to look ornamental, rather than otherwise, and not give the idea of a prison-house. Although it is necessary to remove patients from their friends, yet when reason has been returning, it has sometimes been found useful to gratify them with a sight of those they love the most. I know that the exceptions to the rule of not allowing them to see their friends, are rare, but now and then that rule may be broken through, and great advantage derived from it. Dr. GOOCH gives an account of a lady with puerperal insanity, in whom the gratification of seeing her husband was productive of apparently good effects. A similar case occurred to me eight or nine years ago, in a gentleman who had been deranged from moral causes. From great anxiety of mind he was perfectly deranged, but his insanity subsided, and he told me that he should like to see his wife. I found him still deranged ; but I stopped with him two hours, and satisfied myself that it would do him good. - He wished to leave his bed-room, and see different parts of the house. I took off his jacket, and led him down stairs, and gratified him by letting him see first one part of the house, and then another. I watched the effects, and found it did not disturb him in the least, but he seemed to gain intellect and power over himself, as we proceeded. There were many little gratifications which he wished for, and which I let him have. One curious thing was to kill a banton cock, which he saw from a window, and which appeared to him as a spectre, or some fiend. I gratified him and he was exceedingly thankful. He killed it himself. I watched him carefully for some time after this, and at last I satisfied myself that the sight of his wife would not be dangerous. I brought her from a neighbour's house, and the interview was most affecting. From that moment he was perfectly in his senses, excepting for a few days when he was violently excited, and then he was found to ramble ; but from that moment to this he has been in his perfect senses.

The absence of all corporeal punishment, of all cruelty, of all severity, of every thing which is calculated to irritate the patient, and

the adoption of every thing that is mild, and gentle, and soothing, calculated to excite their best feelings, and all their feelings in a pleasurable and satisfactory manner, will lead very frequently to the removal of the disease. But beyond this gradual, imperceptible good operation on the disease, moral treatment cannot be expected to go. You cannot expect by moral treatment to cure a madman at once.

A madman maintained the possibility of the miracle of St. DENNY. The miracle was, that the saint kissed his own head; and this would have been impossible, I suppose, except by a miracle. A madman was maintaining that this was a fact, and said it was possible, because he had done so himself. Another madman inquired how he did it? Whether he kissed it with his heel? and then he laughed at him. From that moment the man never spoke of it again. It is said that here was a madman convinced, by ridicule, of the folly of the notion that St. DENNY could have kissed himself, because if he did he must have kissed himself with his heel. Now it is quite clear that the man must have been almost in his senses to have seen the validity of any such reasoning.

There is an instance of one man who fancied himself dead, and would not eat, and there was a fear that he would die of starvation. The difficulty was how to get him to eat. Some people dressed themselves in shrouds, like corpses, and went into his room, which had been previously darkened. These people carried food with them, and ate it freely, saying that they were dead, and that the dead always ate well; and, as he wished to do every thing that became a gentleman who was dead, he thought he would eat too. It is said that he then fell asleep, and when he awoke his fancy was gone. Some madmen will not eat in the presence of any body, nor will they eat if they think any one will discover that they have been eating. The madman who had such a whim had food given him, with a request that he would feed the cat with it. He was extremely hungry, and ate it very readily, and afterwards declared that he had given it to the cat, who swallowed it all up at once. Nothing is found more useful, in the treatment of insane persons, than to establish habits for every thing which you wish them to do. If a certain hour be established for going to the water closet, they will go as a matter of course, without ever staying away, and retaining the contents of their bowels; whereas, if there be no fixed time for it, you may have the greatest difficulty. So with respect to their food, and every thing else.

DISEASES OF THE THROAT.—BRONCHOCELE.

THE disease to which I shall next direct your attention, is situated in the neck, outside the air-tubes—in the gland called *thyroid*.

This disease is called *bronchocele*, from *βρογχος*—the windpipe; and the substantive of which we make so much use, *κνλη*—a tumor. The French call it *goitre*; and it is supposed that this is a corruption of the Latin word *guttur*—the throat.

The symptoms of the disease are a swelling in the front of the neck, in the situation of the thyroid gland, and produced, in fact, by

an enlargement of that gland. No disease would be called *bronchocele*, although a swelling of the neck, unless it were the result of an enlargement of the thyroid gland. This tumor is for the most part soft, and neither painful nor tender: it is neither painful when left to itself, nor is it so when touched; and therefore it is not tender. Occasionally, however, it is very hard in some portions; although it is usually soft in almost every part, yet occasionally you find it hard in some one part—of cartilaginous, and, indeed, sometimes of bony hardness. It may attain a large size, and of course it may be very small; it may, in fact, be merely a general fulness of the gland, or a slight general enlargement; but very frequently you find it is enlarged chiefly, or almost entirely, in the centre, or on one side particularly; and from being at the beginning a slight fulness of only one lobe of the thyroid gland, it may attain so enormous a size as to hang down to the knees. FODERE mentions an instance of a tumor which weighed seven or eight pounds. ALIBERT mentions a tumor, occurring in a man thirty-eight years of age, which reached to the middle of the chest, was as large as a pumpkin, and looked like a pelican's pouch. There is also one mentioned as existing in a female upwards of sixty years of age; it extended from ear to ear, and descended below the *mammæ*, impeding deglutition and respiration, and it pressed considerably on the *meatus auditorius*, so as to close it up. A German author mentions an instance of a goitre descending to the knees.

This disease affects females more frequently than males, and usually it does not begin before the individual has attained eight or ten years of age: there are, however, exceptions to this. A physician mentions a child, in Derbyshire, who was born with one of considerable size. At different times, when I have been in Switzerland, I have made inquiry about it of the country people and of my guides; and one old peasant told me, that he knew an infant who was born with a goitre; and I myself saw one in a little boy only four years of age. However, the answer I usually received was that the disease seldom appeared before six years of age. Some of these people have an idea (and they told me, and wished me to believe it) that a child has a goitre, or is a cretin, if either of the parents were drunk at the moment the little fellow was begot. They ascribe it to that; not, however, in every case. However, as the disease is certainly seen in children, and they are sometimes born with it, and frequently the parents have goitres, it may be hereditary; but although both parents may have goitres, yet, just as we observe with respect to other diseases, it does not follow that the progeny must have goitres. A case has been mentioned to me of a goitrous father and mother, who had begotten between them five children, all of whom were goitrous—in a state of cretinism; and of another pair, both goitrous, who had four children with goitre, and one, twenty-two years of age, who was neither goitrous nor idiotic; in fact, he said she was tall and *gentil—très gentil*. This disease very frequently accompanies cretinism. When you see an individual with a large head, an ace of

spades nose, the eyes a mere slit, perhaps deaf and dumb, and imbecile, it is very common to see the thyroid gland enlarged—to see bronchocele exist; and it is asserted that if people, both having goitres, marry, and one of their children having a goitre marry another with a goitre, that their offspring—third generation—are sure to be something worse than goitrous—to be cretins—to be idiotic.

When the disease has begun, it usually increases; but occasionally it makes a stop—does not, at a certain period of life, increase any more; and I have fancied that it has sometimes appeared to shrink in old age. Bronchocele may destroy life by pressure on the neighbouring parts; and Dr. BAILLIE says, that he saw one or two cases in which death took place from pressure on the œsophagus and trachea. I have frequently seen it affect the voice so that a person spoke in a hoarse, croaking tone, with a sort of hissing sound, such as is produced when the trachea is pressed. The disease is not entirely confined to the human subject, but cattle also, and dogs, have it. It is very common for it to be less during the winter, and to increase again during the summer. It is said usually to begin in one lobe only of the thyroid gland.

You will find its appearance sometimes uniform and sometimes knotty; and on cutting into the tumor, you will find cells of all sizes, and with contents of various consistency. Sometimes the contents are found gelatinous, and sometimes soft. Sometimes one particular part is cartilaginous, or even ossified, and you will see a quantity of calcareous matter. You will see a variety of appearances in different parts of the same tumor. There is a representation of the disease in Dr. BAILLIE's work. Occasionally the tumor suppurates, and sometimes disappears spontaneously. I need not say that the blood-vessels of the part are found very much enlarged. It is seen in England, France, Spain, Switzerland, Germany, China, Tartary, Bengal, and the Island of Sumatra.. MUNGO PARK says that he saw it in the negroes of Barbary. It is seen in Spanish America, and again in North America. Some have ascribed it to the cold; but as it occurs among the negroes in Barbary, and also at Bengal, it cannot be owing to the cold. Some have ascribed it to the snow-water; but there is no snow either in Barbary or Bengal; and, on the other hand, the disease is unknown in Greenland and Lapland, where there is little else than snow-water, and where the weather is very sharp. It appears, however, dependent, I think, in some measure upon the water; for the waters in the rivers and lakes of Switzerland are always bad, and are drunk only by the poor and ignorant, and those who drink them heartily are, for the most part, sure to have the disease. Those who are above the most abject class, do not drink the waters either of the rivers or lakes. I had an intelligent guide in Switzerland in 1826, and he told me that, beyond all doubt, this water produced it; but those who drank spring or snow-water, which did not run along a bed of lime, escaped; and nearly all escaped who drank cascade water. He said that the bad water usually took about a year to produce the disease; but the instant

the bad water in his neighbourhood was drank by those unaccustomed to it, they found unpleasant effects; and sometimes, he said, these were prevented by putting a bit of ice or snow to it.

Captain FRANKLIN says, that at Edmonton, on the banks of the Saskatchewan river, goitre is very common; that it is certain, goitre affects only the drinkers of this water; and that, in its worst state, the disease is confined almost entirely to the half-breed women and children who are always resident in the Fort, and make use of the river water, drawn, in the winter, through a hole made in the ice: whereas the men, from being often from home on journies, and using snow-water, are less affected with goitre; and when they are at home in the winter, if signs of goitre come on, their annual summer visit to the coast presently cures them. He says, the natives who confine themselves to snow-water in the winter, or some of the small rivulets which flow through the plains in the summer, are exempt from the disease. A residence of one year at Edmonton, where the water is so bad, is sufficient to render a family bronchocelous. He says that many of the goitres acquire a large size, and burnt sponge has been tried, and found to remove the disease, but drinking the water again renews it. A great proportion of the children who have goitres, he says, are born idiots, with large heads, and other distinguishing marks of cretins; but he could not learn whether it was necessary that both parents should have goitres to produce cretin children.

I was in Switzerland, passing along a valley near the Lake of Valteline, the guide told me that in one of the populous villages there was no spring, and the inhabitants are therefore obliged to drink the water of the river, which is so bad that goitre prevails there very much indeed; but in another village there are plenty of springs, and nobody there thinks of drinking any water except that from the springs, and no one there has goitre. He also added, that where there is much goitre, they are all Catholics, whereas in the village where there are plenty of springs, the inhabitants are Protestants. This is rather an important remark, because it is a very striking circumstance, that, on many parts of the continent, the Protestant districts are much cleaner and more healthy than the Catholic districts. More frequently than not, you can tell the Catholic districts by merely looking round and observing the state of the peasantry, without asking a single question. The Catholics spend so very much time in praying, that they are dirty in their persons, negligent altogether, not at all industrious; whereas the Protestants are very clean, not spending so much time in church exercises, and they are much better off altogether.

The nature of the water which produces this disease is not well known, but it is in all probability mineral; I presume it to be so, as the water contains so much lime, but will not assert it. Captain FRANKLIN says that those inhabitants who reside 60 miles nearer the source of the river than Edmonton, are said to be more severely affected than those at Edmonton; and he says goitre is unknown at a distance from the river, where nothing but snow-water is drank for

nine months in the year ; and he adds, that still farther from the source than Edmonton, where the water is still turbid, the disease is unknown. It certainly appears connected with the water, and it appears to arise from some impregnation which the water has near its source, and which it loses as it goes along. At Edmonton too, Captain FRANKLIN tells us, that the river is clear excepting from the month of May to July ; and that the distance from the rocks and mountains is 130 miles. The neighbouring plain is alluvial, and the soil calcareous, with many fragments of magnesian lime-stone. In Switzerland it would not appear to be originally in the water at its source, because the springs and cascades do not produce it ; on the contrary, it is the water that runs along beds, and is found in lakes, that appears to give rise to it. Persons on the mountains are rarely affected, and those who remove from the valleys and places where it prevails, to the mountains, find the tumor in some degree alleviated, and after a great length of time the disease is known to cease altogether. The disease prevails much more in valleys with high mountains around them than elsewhere, such as you see in Switzerland, and perhaps in those which are most exposed to the east and south winds.

Whatever may be the cause of the affection, it is found to prevail most where the air is worst—where the mountains cause the air to be pent up, and where the persons are badly off. It prevails in a particular valley in Switzerland most frightfully, and there the people are the worst off ; for there you see more poverty and wretchedness than in almost any other part ; the inhabitants are dirty, and badly fed. In the countries where it is prevalent the people have a dirty brown look, and appear withered, as if they were in premature old age. It seems that the causes which produce the disease are those which poison the habit generally, and render it more liable to be affected by the causes of this particular disease. They have an aguish or malaria sort of look ; yet you sometimes have it where there is no ague, and you have ague where you do not meet with this disease. Any circumstance which throws the body out of health may predispose to this disease. The particular circumstance of the patient having a withered look may not be immediately connected with bronchocele ; but the causes of the withered look may impair the constitution, and render the person constantly liable to become goitrous. My own guide told me, that where the inhabitants were dirtiest, and the worst fed, they were most subject to the disease. Dr. GOOD says that it appears in Derbyshire among the poor only ; I suppose he means chiefly. He ascribes it to oat-cake ; but it is eaten in other parts of England with no such effect.

TREATMENT.

The patient should desist from drinking any water which may be suspected to be the cause of the disease. Burnt sponge is unquestionably useful in it ; and many practitioners say that they have seen cases cured by it. I presume there can be no doubt that it possesses a remedial power over the disease ; and some unite it with sulphur.

The most efficient remedy, however, by far, is iodine ; and it may be employed externally or internally. I have myself cured many case of bronchocele, some of them where the tumor was rather large, with this remedy. It may be employed in the form of iodine itself, or it may be united with hydriodate of potassa, and that perhaps is the best way of administering it. In regard to the quantity there is no rule for the dose, for it produces two effects, constitutional and local. The constitutional effects are emaciation, morbid irritability of body, quickness of pulse, palpitation, absorption of particular parts, it is said, more especially those connected with the succeeding generation—the mammæ of women, and testes of men ; it takes away likewise the appetite, and is more or less injurious to the body at large. But besides that, it is a very acrid substance, and therefore, like any other acrid substance taken into the stomach, it will produce vomiting and gastritis, and even ulceration ; and when it passes the stomach, it may produce diarrhœa and more or less inflammation of the mucous membrane of the intestines. Now it affects the stomach and intestines immediately, simply as a corrosive agent ; and this may arise in one person from a small quantity, when it will not occur in another from a large quantity. You never know beforehand the disposition of the patient in regard to it, and therefore it is always best to begin with a small dose. There can be no impropriety, as the disease is chronic, in delaying an efficient dose for some time. You may therefore begin with five minims of the saturated tincture, and if no unpleasant effect be produced, it may be increased a drop every dose, or every other dose. I have gone so far as to give 100 minims for every dose, but a great number of persons will not bear above 20 or 30 minims. Patients complain of heat of the stomach ; and if you begin gradually, and inquire of the patient whether there is any burning sensation, or heat of the stomach, or any griping, you never need run the risk of doing mischief from its local effects. When a person begins to feel a dose, such as 15 or 20 minims, I have been told that diarrhœa took place—even griping and bleeding, it is such a corrosive substance ; and if a quantity be taken into the stomach, the mucous membrane will soon be in a state of erosion.

As to the other salt, hydriodate of potassa, there is scarcely any rule for the dose, but it may be given in larger doses than the other. If you mix a drachm with an ounce of distilled water, you may begin with ten or fifteen minims, and increase the dose to a great amount. The article is often adulterated, and lime has been found in it. There is no rule for any dose of medicine that is applicable to all cases. It has been thought by some, that it would be better to give iodine itself and this salt together. Some persons always find fault with others who are energetic, or employ remedies in an efficient manner ; but there is no reason because you are energetic, and employ them efficiently, that you should employ them rashly. There is no occasion to do a patient harm, and no occasion to run any risk.

I have been obliged in bronchocele to give iodine a whole year before the disease was cured. Seeing the disease was lessened, I persevered, and have gone on for twelve months, and, indeed, above that

time—I think in one case fourteen or sixteen months, before the disease went away. That was the largest case of bronchocele that I ever cured. I never saw any unpleasant constitutional effect, though no doubt such effects will occur. But I think if you see the patient frequently, and make proper enquiries at every visit, in general such unpleasant effects can hardly occur. Now and then you may be taken by surprise with it, as is the case with every remedy; it may suddenly act: but in general, when a remedy appears suddenly to act, it has been continued some time after its effects have begun; and if it had been watched carefully, and left off the moment it commenced its action on the body, no such effects would have ensued. I cannot but think, in cases where a remedy has seemed to act suddenly, with the exception of digitalis, that in the greater number of instances it has began to act moderately, and then been continued without diminution; because had it been omitted, the moment the effect began, the slight effect would gradually have ceased. It is well to apply the remedy externally as well as internally; and you make an ointment by putting a drachm, or even two drachms of the hydriodate of potassa to an ounce of grease. Of course the skin differs like the inside, and the constitution at large; and what produces merely an irritation in one part, will produce a diffused rash in another. It is well to use half a drachm or a drachm at first, if the person have a fine skin; and then, if no ill effect be produced, you can increase it. Of course, it is absurd to apply it so as to irritate the skin; the patient cannot bear rubbing then; and if inflammation begin, it must go down before you can apply it again, and you lose so much time. It has been supposed that the good effects of burnt sponge are ascribable to the iodine which sponge contains. Besides burnt sponge and iodine some recommend carbonate of soda, some conium, and some leeches. If the part fall into an inflammatory state, leeches may be useful; and if inflammation occur, the iodine should be suspended, and common antiphlogistic remedies resorted to till the effect has ceased, and then it should be had resource to again. Mercury, internally and externally, has been useful, and the two may be combined. I have seen the disease give way to the two, but I can hardly say how much good was ascribable to each. Pressure has been said to be useful, but it is awkward to make pressure, on account of the trachea and œsophagus. There can be no doubt that a seton in this disease is an efficient remedy. There are very many cases of this disease on record which have yielded to a seton placed in the skin over the tumor.

Some surgeons have tied the vessels of the tumor with good effect. I have only to do with this disease as it is to be treated by medicine, but I may mention that Mr. THOMAS BLIZZARD tied the vessels, but death took place from secondary hæmorrhage; however, in one week the tumor decreased in size one-third. WALTHER tied the left inferior thyroideal artery, and the tumor diminished so much that at the end of fourteen days he took up the right superior thyroideal artery: no inconvenience was felt, and the tumor speedily almost entirely disappeared. Mr. COATES, tied the artery on the left side only, and cured the complaint. Some surgeons have been bolder still; and

Dr. HEDENUS, of Dresden, with whose son I was acquainted, extirpated the gland in six cases, in one of which it was as large as a skittle ball. The whole of the cases were successful. FODERE mentions the case of a barber who cut one away from his wife. This was a lucky hit, for he would probably kill the next woman on whom he operated. Two unsuccessful cases of extirpation are said to have occurred to Mr. GOOCH. DUPUYTREN, removed a tumor after having first tied the arteries: only a few spoonsful of blood were lost, but the operation was very long: much suffering took place, and the patient died in thirty hours. In several cases the operation has been found so hazardous, and altogether so difficult, that the surgeon has been obliged to desist in the midst. DESSAULT is said to have removed half a one with success.

The chief treatment, however, is by iodine internally, and by means of a seton; but you are not to suppose that either of these will cure every case. I have seen the tumor so hard that it was quite absurd to suppose anything was capable of removing it. When it is cartilaginous, or ossified to a great extent, I should think it in vain to give iodine, or apply a seton. Respecting extirpation, I may mention that I find a note in FRAZER's Journal, stating that in no part of the world has the whole tumor been extirpated. There can, however, be no doubt of the fact, for persons have shewn that the tumor has been extirpated by the scars in the neck left after the operation.

PAROTITIS.

The next disease is one situated in the glands in the neighbourhood of the thyroid, but a little higher. This is entirely a medical disease, and is called, as it is an inflammation of the parotid glands, *parotitis*, or, in the language of Cullen, *cynanche parotidea*.

Dr. Cullen makes five kinds of cynanche.—The definition of the whole is, “pyrexia, frequently of the typhoid type; redness and pain of the fauces; deglutition and respiration difficult, with a sense of constriction; narrowness in the throat.” This is his general definition of cynanche. The first of the five kinds of this general nature is inflammation of the parotids, inflammation of the tonsils, and so on.

To speak of parotidea or parotitis, or, in plain language, the mumps, this is a swelling of one or both parotid glands, attended with an increase of heat in the part, extending to the submaxillary and sublingual glands, and affecting the rest of the salivary glands. The disease is attended by slight feverishness, slight pyrexia, and lasts in general three or four days, sometimes longer. It is sometimes followed by inflammation of the testicles or breasts, which some call *testitis* and *mammitis*. Certainly either is a much better name than *hernia humoralis*, which caused great confusion, because it has nothing to do with what we understand by hernia. However, inflammation of the parotid or salivary glands is sometimes followed by inflammation of the testes or breasts, and then this is sometimes followed by phrentitis; and when a testicle has been so inflamed, it frequently after shrinks, wastes away, suppurates, atrophies, and

nothing is left but the membranes, the albuginea and tunica vaginalis. This disease occurs usually but once during life, and it is said to be contagious. It certainly is sometimes sporadic; you see single cases; but frequently it is epidemic; it prevails in a boys' school all at once throughout, and it prevails in several schools in the same neighbourhood, and many believe it to be contagious. I really do not know whether it is so or no. It occurs most frequently from seven to fifteen years of age, sometimes later. Now and then you will see it in young men, but most frequently it occurs at the time I have stated.

Treatment.—You have only to apply moderate warmth, keep the patient quiet, make him abstain from ordinary nourishment and stimuli, give him a mild aperient, and the disease, for the most part, goes away after a time. It is very rarely that suppuration takes place. I have seen suppuration, but I presume it was an accidental circumstance, from the inflammation extending to the cellular membrane. I should not recommend cold to be applied, because the disease has a tendency to metastasis, at least to the testicles and breasts when it ceases, and one would suppose that if you cause it to cease suddenly there is a greater probability of such inflammation occurring. As to inflammation of a testicle, that is not in itself a dangerous thing: it is only sharp and painful, yet it is thought to be a serious thing. I believe, however, there is no great harm, if one should be lost, because the other does double work. But there is something more dangerous, and that is the liability to phrenitis. Phrenitis sometimes takes place when inflammation of the testicle ceases: sometimes the inflammation in the brain may occur when the mumps cease, but more frequently than not inflammation of the breast or testicle occurs first, and then phrenitis supervenes. If the case be severe, you must treat it more antiphlogistically still, by means of leeches and purgatives.

TONSILITIS.

The first disease of which I will speak is inflammation of the Tonsils, called by Cullen *cynanche tonsilaris*, but frequently called by others *Tonsilitis*.

The disease, however, to which this name is given is not an inflammation of the tonsils simply, but the surrounding parts are also more or less affected. The velum pendulum palati and the uvula, as well as the tonsils, one or both, are red and swollen. The uvula is elongated, and its margins are translucent; it becomes œdematous and swollen. If both tonsils be inflamed, on opening the patient's mouth you will see two large red balls, one on each side of the throat, which impede deglutition and speech, and may be felt also externally. When the tonsils are enlarged, people in common language say the almonds of the ears are down. Besides this swelling and redness, the secretion of the parts is altered, so that the mucus of the mouth is very tenacious—slimy, as people say. There is fre-

quently very great pain ; for the inflammation affecting the tonsils is of a phlegmonous character, and the pain is sometimes very severe, stabbing and shooting to the ear. Besides the shooting pain, there is necessarily great tenderness felt, particularly on swallowing. Even the effort to swallow the saliva—that is to say, the mere effect of swallowing, without the presence of any firm substance to swallow—gives pain ; the motion of the part is productive of pain. You may see the disease sometimes on one side only, and sometimes only on the other ; and it is said that the disease will shift from one tonsil to the other, just as is sometimes seen in inflammation of the eye : when one eye gets better, the other will become inflamed : and this is often perceived in the case of the tonsils ; when one ceases to be inflamed the other becomes so. Sometimes, in addition to the inflammation producing redness, heat, swelling, and hardness. Some persons, as soon as they have a sore throat, have specks of ulceration here and there on the tonsils and uvula, with very little subjacent inflammation. Some persons have the mucous membrane only inflamed ; the inflammation is quite superficial ; perhaps without any inflammation of the subjacent cellular membrane, hardness, or enlargement. If the case be severe, there is good deal of pyrexia. The pulse will become very quick in this disease, as it sometimes will in acute rheumatism, without any danger whatever, and the tongue is frequently excessively foul ; I presume from the inflammation affecting it as well as other parts. The foulness of the tongue is not at all in proportion to the danger of the disease ; but I presume it arises in a great measure from the irritation being situated in that quarter of the body. The disease may terminate in resolution, as it is called, or it may terminate in suppuration. It is decidedly phlegmonous inflammation, so far as the parts are concerned, and they very frequently suppurate ; and when they do, the matter is found to be very offensive—as offensive as if it were coming from a diseased bone.

The predisposing causes to the disease are, in the first place, a peculiar constitution and disposition to it. There are some people who, in whatever way they are exposed to the general causes of inflammation, continually get a sore throat. Whenever they are exposed to the vicissitudes of temperature, coldness, and moisture, they are sure to have inflammation of the throat ; and this will run in families, so as to be constitutional. It certainly is predisposed to by mercury. When persons have been much under the influence of mercury, they are very liable, as I formerly mentioned, when speaking of inflammation in general, to take cold from the vicissitudes of temperature, and the throat is certainly particularly liable to inflammation from this cause. The youthful period of life appears more liable to tonsilitis than old age.

The exciting causes of the disease are, especially, cold and wet, whether applied to the body at large, or to the feet only. Certainly cases of this description occur from cold and wet more frequently in the spring than at any other period of the year. Cold and wet united are common causes of the disease.

TREATMENT.

It is rarely necessary to take any blood from the arm; but leeches around the throat are particularly useful, I do not know that it is necessary to apply them internally to the fauces; I think that externally they answer every purpose they can do, and that a free application of leeches is far before blistering. As a general rule, in the treatment of inflammation we must be upon our guard never to let blistering take the place of the removal of blood. If the inflammation be at all severe, you only harass a patient in any inflammation whatever by blistering, if there be a necessity to take away blood; and in this disease blistering is a very painful remedy. The application of poultices not only tends to encourage the bleeding, but is a constant fomentation, a mode of relaxing the parts, and causing perspiration there. If the patient be too weak for you to apply leeches, a blister then will be proper; or, if you have applied leeches as much as you think advisable, and still it is requisite to do more, before the disease can be controlled, then blisters may be used with advantage. It must, however, be remembered, that when a patient can bear leeches you find them the most useful.

I have found great benefit in this disease from a mode of treatment perfectly analogous to what is practised with so much success in some cases of inflammation of the surface of the body and subjacent cellular membrane. You know that, in erysipelas phlegmonoides, or any kind of erysipelas where there is extreme tension and hardness of the surface, incisions do great good; they set the surface at liberty—allow it to gape so that the tension is removed, and great benefit always ensues. Now I have adopted similar treatment frequently in inflammation of the tonsils, and with very great effect. It is sometimes very difficult to know, in the case of the tonsils, whether matter is formed or not; and I dare say many practitioners have plunged a lancet into the tonsils, in the expectation of finding matter, when there was none. They become sometimes so exceedingly large that it warrants a person in trying whether there is any matter or not. Sometimes, when there is matter, instead of being softened, the parts are so tense that you will not find any fluctuation; and sometimes they are swollen so much that you would fancy there was fluid when there is not. Thus mistakes are made on both sides. But whether matter come or not, great relief is experienced from plunging a lancet into one or two places. The part is always very tense; if you put in a lancet it gapes; and when there is a little bleeding, the patient in most cases is better for it. I have seen it afford far more relief than leeches. If there be any matter there, the escape would be desirable; but if there be none, you generally find very great benefit.

For the purpose of purging there is nothing so good as a large dose of calomel, because it may be mixed with sugar and put on the tongue, and it slips down easily. It is wrong to give acrid purgatives, such as salts, which stimulate the parts as they go

down; and it is wrong to give any thing bulky: castor oil easily slips down.

Some persons recommend vomiting in this disease, and certainly it causes a great discharge of mucus from the pharynx and larynx, and all the surrounding parts, and frequently does good; but frequently it is a severe remedy.

Gargles are pleasant to the patient, on account of the tenacity of the mucus. A sour gargle is very grateful, and so sometimes is the inhalation of the steam of hot water. This relaxes the parts, and is found very agreeable; but I have often seen patients derive the greatest comfort from ices. As soon as ever you are satisfied there is fluctuation, as soon as you feel the parts soft, or if the part has been inflamed some days, and continues large, it is always right then to make a puncture. If you do not choose to make a puncture to lessen the inflammation, still it is right to do it on the probability of there being matter, not only as soon as you feel fluctuation, but when several days have elapsed, and the part is swollen. It is wrong ever to delay this operation; it is quite harmless, and only productive of momentary pain. Although this is the form of the disease which we see every day, yet we occasionally find this affection occurring with debility. It is chiefly in old people that it occurs in this latter form, and chiefly in people who have had frequent sore throats. When the throat has been sore very often, the inflammation is not of an active kind, but follows the course of gonorrhœa:—when the people have had that affection very often, the acting symptoms are less severe, and so it is in the throat. When persons have had many attacks of tonsilitis, the inflammation is generally less active; the parts are not of so bright a red; they are of a more dingy red, there is less pain, and the swelling is greater in proportion to the other symptoms. In such a case as this, with such debility of constitution, the shortest way is to give stimulating gargles; for instance, the American decoction of seneka, with Cayenne pepper and brandy in it. If the patient be weak, you must give good food, and sometimes allow a little wine. The case may be like any other inflammation—active, and to be treated as first pointed out, or it may be passive, and require only local astringents and stimulants; but sometimes the whole constitution is weak, and you have to support the patient with good food, and perhaps even wine.

TONSILITIS, ATTENDED WITH ULCERATION.

It is when this disease occurs with ulceration that treatment of this kind is most frequently required. Sometimes, when the disease occurs with ulceration, there is a great tendency to mortification. This is a case that must be treated on the principles I before mentioned—good food, more wine, and perhaps quinine. But good food and wine are among the best things; and you must also employ stimulating applications, together with stimulating gargles. In this case, too, the chlorides of soda and lime answer very well; that is, when the patient requires a stimulating gargle simply. It is not, however, in every case of inflammation that you are to presume there is ulceration; but,

as I mentioned when speaking of ulceration of other parts of the body, where there is ulceration you must adopt antiphlogistic regimen. You see the parts red, and there are signs of strength, and the shortest way to cure the ulceration is to bleed locally and generally, and put the antiphlogistic plan in force. Ulceration, however, occurring in the throat is most frequently of an opposite character. This ulceration of the throat is most frequently seen in scarlet fever, where it is called *cynanche maligna*; but frequently ulceration of the throat occurs without scarlet fever at all. Under these circumstances, it is frequently necessary to inject stimulating gargles several times a-day. One of the best applications is the acetate of copper made into a gargle. There are many good ones, but this is one of the best. Chronic ulceration, also, of these parts is very common. It is, you know, one of the common effects of syphilis.

But, besides this, the disease itself (to say nothing of inflammation in other parts) is sometimes chronic, and it is then attended with permanent *enlargement of the tonsils*. This is more frequently seen in children than others. The tonsils, after they have been inflamed, remain hard, fall into a state of chronic inflammation, induration, and enlargement—from lymph, I presume, having been effused into the cellular membrane. There is no difficulty, in cases of this description, in making a diagnosis. If you fail to make it externally, you have only to make the patient open his mouth and you see the disease.

TREATMENT.

The best treatment is the moderate exhibition of calomel, so as slightly to affect the mouth; the use of iodoine, internally or externally; and hydriodate of potassa. Iodine, in both forms, has great power in dissolving and dissipating induration and enlargement. There can be no impropriety in combining both plans together. If there be much tenderness, leeches are very proper. Occasionally this enlargement is not the result of active inflammation, but takes place slowly; and friction with iodine, or hydriodate of potassa, or both, is a very good thing. Sometimes you will see cases in which it is judged right to have recourse to surgery, to extirpate the tonsils, or tie a ligature; but the greater number of cases do not require this, provided you treat them early and perseveringly by mercury, or iodine and hydriodate of potassa, both internally and externally. Sometimes persons are consulted on account of the patient having a fœtid breath, commonly called, in vulgar language, a *smoky chimney*. It must be very annoying.

Now a fœtid breath may arise from many causes. It may be accidental, from a person eating something nasty, and which enters into the blood, and is there poured forth, till the blood gets rid of it all, from the vessels of the bronchiæ. If a person eat onions, it is not while they are in the stomach that the breath is fœtid; but when the odorous principle of the onions is in the blood, it is poured forth into the bronchial membrane. The bronchial membrane is found, by physiological experiment, to be one of the great outlets by which the body gets rid of improper things taken into the blood, or at least, of things

foreign to the blood. Carious teeth, or a diseased bone, is likewise a cause of fœtid breath; but one very common cause is a depraved secretion of the tonsils. If you look into the mouths of these patients, you will frequently see the tonsils enlarged, one or both, or at any rate you see them containing a cheesy-like matter; and if it be pressed out with the handle of a spoon, the person's breath, for the time, is so much the less offensive: but the individual's breath itself, independent of this stuff, may be offensive. I should imagine that stimulating the follicles to a greater secretion would favour the escape of this stuff, and not allow it to accumulate there, and form these nauseous concretions.

You will repeatedly have children brought to you by their mother; with pustules on the tongue and lips, and inside the cheeks. I do not know that the disease has any specific name, but the tongue, sides of the cheeks, and lips, are elevated in consequence of the pustules, and the tongue is frequently much swollen, and just the colour that it is when persons are much under the influence of mercury. You would imagine at first sight, from the swelling of the tongue, the quantity of mucus secreted, the saliva running out of the mouth, and the fœtid state of the breath, that the child had taken mercury, but if you give calomel in such a state as a purgative, (and which is one of the best things to give children), it does not increase the mischief, but answers as well as a purgative.

I have found great benefit in these cases from the use of washes containing some astringent; but the best mode of giving it to the child is to put a grain or two of sulphate of zinc, for example, into an ounce of syrup. The child has no objection to it, and it exercises a beneficial influence. The disease sometimes occurs to many children in one family; but whether it is contagious I do not know. The disease is described as common ulcers on the mouth of children, and they may last some time without any danger, but purgatives and local astringents are very useful.

APHTHÆ.—THRUSH.

There is a disease that affects these parts frequently, and usually in the period of infancy, which is called the thrush, or in medical language, aphthæ. It is mentioned always under diseases of the skin; but as it occurs in the mouth and throat, it is perhaps hardly right to call it a cutaneous disease—it is a disease of the mucous membrane.

This disease, aphthæ, consists in the formation of vesicles within the mouth and lips, and all the way along the cheeks, tongue, the *velum pendulum palati*, even the mucous membrane of the hard palate, the tonsils, and pharynx. On opening the mouth, you see just the appearance as if the patient had been taking milk, curds, and whey, or some chalk mixture: all the vesicles are exceedingly white. This is produced by innumerable elevations of the cuticle, by a fluid, and a large number of minute vesicles. There is sometimes a good deal of inflammation with it, and sometimes you will see scarcely any thing more than this white appearance, as if the parts were filled with curd. It certainly is the most common in infants, but you will fre-

quently see it in adults, at the end of chronic diseases, at the end of phthisis. It is very common for persons then to complain much of the throat, to complain of a difficulty of swallowing, and even when persons die of diseases of the abdomen of various sorts, it is very usual indeed to see aphthæ before death. It will occur in old people from very trifling causes.

This is supposed to be a fatal disease when it occurs in old people, or in those in whom a chronic disease has existed for a long time; but it is not an invariable rule. I recollect an old lady of 90; she suffered an attack of bronchitis, and got well, and afterwards attained the age of 100; how much more I cannot tell; but I know she lived ten years after the attack, notwithstanding it was united with aphthæ, and therefore aphthæ is not a fatal sign in old people. You however see the disease every day in persons who are dying of chronic diseases.

TREATMENT.

When the disease occurs in infants, it may be so slight as to require scarcely any treatment; but if it do, you find it useful to employ the warm bath and attend to the bowels. There is frequently irritation of the mucous membrane lower down in the alimentary canal, frequently sickness, and frequently diarrhœa; and you therefore often find it useful, besides the warm bath, to have recourse to purgatives, and besides that it is sometimes necessary to employ hydrarg. c. creta and opium. There is often tenderness on pressure, and then it is necessary to apply poultices over the abdomen, as a constant warm bath, and to apply a leech or two, but often a mustard poultice answers best. A small portion of ipecacuanha, or camphor, is often serviceable, but nothing is better than a mild astringent in syrup, such as I have mentioned already—a minute quantity of sulphate of zinc, for example. Many people employ borax and honey; the old women tie a rag to a stick, and mop out the child's mouth, and thus make things worse—they had better use a camel's hair pencil, or leave the disease to pursue its course. I have no doubt that in children the chlorides are useful, but of course they must be given very much diluted. In adults I do not know any means so useful as the chlorides; they will frequently change the appearance of the mouth almost immediately; but they require to be well diluted—the common solution must be diluted with six or eight times its weight of water. When the intestines have been in a state of irritation only, a few specks will appear at the rectum, and then old women consider that the disease has had a long journey, and shews itself at the other end. If, however, you look into the intestines, you find no inflammation, only specks, but it is only towards the anus that the specks appear; nevertheless, the irritation which produced the vesicles certainly does frequently extend all through the alimentary canal.

As we are so near the ear, which communicates with them by the eustachian tube, I must direct your attention to what is commonly called *ear-ache*, because it is sometimes of very great importance. I

have sometimes seen several cases of phrenitis which have spread from the ear. Common ear-ache is not a thing so free from danger as tooth-ache, we every day see ear-ache, and think nothing of it when persons complain, but in any case it may be dangerous.

Ear-ache always arises from more or less inflammation in the meatus auditorius, and ought always to be attended to. Leeches should be applied externally, and blisters, and in some cases the patient should be bled in the arm. After it has lasted a long time, the bones frequently become carious, and when the bones are carious within, inflammation of the dura-mater lying upon the petral portion of the temporal bone is likely to come on, and then it is all over. You will find, after death, matter formed within the ear itself: but you find it also formed upon the bone under the dura-mater, and perhaps above the dura-mater—in the arachnoid, and various other parts; perhaps on the pia-mater, and other parts of the head, encephaloid disease and other affections take place, the patient becomes delirious, and is soon gone. Therefore, when you see intense ear-ache, and the patient complains of pain in some other part besides the ear, and you observe a wandering of the eyes, it is well to tell the friends that he is in the greatest danger. Such a case ought to be treated, like other cases of phrenitis, actively, but I believe in almost every case you find all treatment unavailing. There is a local cause keeping up inflammation of the part, that is to say, disease of the ear, and you cannot expect to be successful.

PHARYNGITIS.

Termed by CULLEN, *cynanche pharyngea*. Pharyngitis usually takes place from the mere spread of inflammation from the tonsils: when the tonsils are inflamed, it is very common for the inflammation to go farther back. Inflammation knows nothing of our artificial divisions of organs and division of diseases, but away it goes along the mucous membrane, and the pharynx is continually inflamed. Now and then, however, we have it in an idiopathic form, that is to say, it occurs as a distinct separate disease, not coming on with any other disease. I have myself seen one or two instances of it. When this inflammation exists there is redness at the back of the throat; on looking into the mouth you see the posterior part exceedingly red. Respiration is not at all difficult, as you might suppose; but deglutition is very much impeded. The voice is not affected any more than respiration; at any rate, if there be any difficulty of respiration, it is slight. It is the gullet that is affected, and therefore persons can speak and respire very well. The treatment is the same as that for inflammation of the tonsils. There is a disease rather lower down than the pharynx—that is to say.

STRICTURE IN THE ŒSOPHAGUS.

In this disease there is, as in inflammation, a difficulty of deglutition; but then there is no sensation of heat in the part, no soreness, and for the most part, no pain. The difficulty of deglutition is chronic, and for the most part has come on very slowly. It is easily ascer-

tained by the application of a bougie or probang, and this is the only remedy ; for medicine can do no good in stricture of the œsophagus. When patients come with a difficulty of swallowing, if you ascertain it is not in the throat, but a little lower down, and you find the stricture has come on slowly, it is right to pass an instrument down to a certain distance. This being the case, you employ surgery. But you will sometimes see this in a different form, and it is then entirely of a spasmodic nature. Frequently, when persons have not a permanent stricture of the œsophagus, they have occasionally a spasmodic stricture in the part, just as they have in the urethra, so that it will be much worse at one time than it is at another. Occasionally you find the œsophagus fall into a state of spasmodic constriction. This occurs more frequently in women than in other persons, and frequently it is connected with hysterical symptoms.

The best mode of treating it is to use the shower-bath ; to purge the patient well ; to use oil of turpentine, and all the remedies of that kind. I have read of cases where it appeared to give way to mercury, but I have not seen them myself : it has always appeared to me, that they would do better with the common remedies of hysteria—by purging, on the one hand, and lessening the irritability of the body at large, by means of the shower-bath, the administration of iron, and putting the health generally into good order, on the other. But you must carefully remember that the œsophagus is very liable to spasmodic stricture without any danger at all.

ACUTE LARYNGITIS.

This disease is not mentioned by CULLEN : he speaks of *cynanche trachealis*, he speaks of the wind pipe and of croup, but not of this particular inflammation situated in the larynx. Indeed, so little was it formerly attended to, that when two or three physicians died of it, some years ago, it was considered almost a new disease ; but on looking into old writers you will find it well described. As you may suppose, inflammation of the larynx must have existed from the time that people had a larynx, and therefore this disease must have been known before.

In this affection there is hoarseness, or whispering, and, indeed, almost suppression of the voice. The breathing also is hoarse, loud, and rough. The inspirations which are taken are long. There is great dyspnœa, and, besides the constant dyspnœa, there are paroxysms of much greater dyspnœa, in which every muscle of the body comes into play, the eyes start, and the person looks as if he were being hung. These are spasmodic fits of difficulty of breathing, supervening from time to time on constant dyspnœa. Such is the state of the parts that there is also frequent orthopnœa—that is to say, the person cannot breathe unless he be erect. From the great difficulty of breathing, the face is pale and ghastly ; the lips are pale and livid—not of a purple colour and livid, but pale and livid ; and perhaps the face and throat are swollen. There is pain felt in the throat exactly at the situation of the larynx, and if you press the larynx you are sure to find it tender—if you press the sides together, or press down

upon it, you find it tender. Sometimes, but not always, there is redness and swelling of the face. Sometimes there is swelling and redness of the fauces, of the velum pendulum palati, uvula, and indeed of the tongue. Occasionally, cynanche tonsillaris co-exists with laryngitis; indeed it frequently does so: the inflammation commences in the tonsils and spreads into the larynx. The epiglottis is very often swollen, that being a part of the larynx—so much a part, that it is, in many anatomical books, enumerated with the cartilages of the larynx. Sometimes there is cough, but not always, and with the cough there is hoarseness; so that you will have the voice hoarse, the breathing hoarse, and the cough likewise hoarse. Sometimes, too, there is difficulty of swallowing. In the function of deglutition, the larynx, you know, is raised and brought forward; and if a part of the larynx so much pressed upon be inflamed, of course, there is a difficulty of deglutition—*dysphagia*, as it is called. There is also expectoration of viscid mucus. This you would suppose: the inflammation being seated in a mucous membrane, it will, of course, affect the secretion. The tongue, too, is very foul, from the inflammation taking place in its neighbourhood. These are the local signs; and they are those of inflammation, redness, swelling, heat, and pain. From the disturbed function there are, of course, also general symptoms: there are thirst, heat, extreme restlessness, and great anxiety. The difficulty of breathing must occasion great restlessness, and must occasion extreme anxiety. The pulse is rapid; there is at last a clammy sweat; the pupils, too, at last become dilated, and the patient keeps his mouth constantly open. The difficulty of breathing occasions, I presume, such an accumulation of blood in the head, that more or less compression exists, and the pupils consequently become dilated; and the patient, from the want of breath, opens his mouth, gasps, and makes an effort to take in all that he can.

I do not enumerate the previous days on which there may be cynanche tonsillaris; but from the time the larynx becomes actively inflamed, the duration is not, in general, more than three or four days; and death sometimes occurs very suddenly—a violent spasm takes place, and the patient is destroyed presently.

This is a disease which occurs almost always in adults. In children we have croup—inflammation of the wind pipe; but when inflammation of this violent kind attacks adults, it affects the tube higher up—it affects the larynx; and it has, therefore, been called the croup of adults.

After death, we find the mucous membrane of the glottis (and epiglottis especially), and the posterior part of the epiglottis—perhaps the mucous membrane of the whole of the larynx—red and swollen, and œdematous; swollen, not merely as mucous membranes are when they are inflamed, but from the effusion into the subjacent cellular membrane. The rima glottidis is found to be nearly closed, and this would appear to be the great source of dyspnœa—the œdematous state of the parts which produces nearly a closure of the rima glottidis. Sometimes the disease proceeds so far as to cause an

effusion of fibrin; so that notwithstanding the disease is an affection of the mucous membrane, fibrin is poured forth just as we see in a serous membrane; and sometimes we find a quantity of pus—at least, of puriform fluid. Occasionally the tonsils are not merely red, as I stated, but even ulcerated; and occasionally the pharynx and the trachea below, and even the bronchiæ, are also inflamed. You are therefore not to expect one uniform appearance in the disease. You will find the essence of it, in all cases, to be a violent inflammation of the larynx, and, in general, an œdematous state of the rima glottidis and the parts around; but frequently you will find inflammation higher up, about the tonsils and the velum pendulum palati—inflammation, perhaps, also of the pharynx. The quality of the fluids will vary from thick mucus to puriform fluid, and even up to fibrin; but that which you particularly notice is an œdematous state. Now all the symptoms are nothing more than you would expect before-hand. The œdematous state, which, perhaps, is fatal, is nothing more than what occurs when the cellular membrane is inflamed any where. When inflammation is situated near the cellular membrane, it secretes abundantly. In violent inflammation of the skin, the cellular membrane secretes to a great extent, and you have more or less œdema; and the same thing occurs here; but from the circumstance of the parts being air-passages, and the inflammation being in the narrowest part of the passage, it is often dangerous. The same occurrence, situated a little higher, in the pharynx, produces only a trifling inconvenience.

The disease begins from a catarrh; the person has a common cold, and the latter generally arises from cold and wet. The application of cold only will produce the disease, but it usually results from an union of the two, applied either to the throat or to the feet. A few days after exposure, the patient has great hoarseness, and then pain in the larynx takes place. Sometimes it does not arise from a common cold, but, as I have mentioned already, a pretty brisk inflammation of the tonsils take place, and it spreads from them. Occasionally, too, it takes place suddenly; but I have seen it in the middle of a chronic disease. There is no part of the body which can be inflamed chronically, that may not become the seat of acute inflammation; and therefore this occurrence may take place in the throat. When there is a syphilitic sore throat, or a chronic affection of any kind, patients may suddenly experience great difficulty of breathing, and be in the greatest danger from active acute laryngitis.

TREATMENT.

No trifling practice is admissible here; you cannot trust to nature, nor can you trust to medical measures alone—for it is necessary, in many cases which last any time, and which become very severe, to use the combined force of medicine and surgery. The first thing to be done is, to bleed freely in the arm—to make the patient faint, if you can—and then to cover the throat with leeches. I am taking it for granted that the patient is able to bear it. The disease may

attack a person with syphilitic sore throat, and he may be worn out with mercury and disease, so that you may not be able to bleed in the arm; but still, in most cases, I am satisfied it would be best to set the patient upright, and take as much blood as he can spare—be it three, four, or twenty, or thirty ounces—and produce fainting, if possible. There can be no rule for the quantity; but it may be necessary to take thirty or forty ounces, and apply from six to thirty leeches, according to the age and strength of the patient. After the leeches, a poultice for some time may be a good application; and then, after all, if you please, a blister, but not earlier.

In this disease mercury is recommended by those who do not ascribe any active power to mercury in general. It is of the highest importance to get the mouth tender as early as possible; and therefore you must not wait a couple of days for salivation to take place. You will find in the *Medico-Chirurgical Transactions* a case of the disease where ten grains of mercury were given every two or three hours till ptyalism was produced; and as soon as the patient began to spit, the affection ceased. I have treated many cases of the disease in this manner, and with the greatest success. In treating a case of this kind, it will not do to give a few grains of calomel night and morning, for the patient is in constant jeopardy, and you are never sure of his life from hour to hour. It would be a good practice to rub in mercury on the extremities. If you exhibit mercury by the mouth, it is necessary to give it in large and repeated doses. I will not say any thing about the dose, because if you know that the patient is soon affected by mercury, a small quantity will do.

If the patient be in great danger, if his attacks of difficulty of breathing come on frequently, it will not be right to wait for ptyalism: but it will be requisite to make an opening into the throat, so as to enable the patient to live till the mercury produces its effects. Bronchotomy is absolutely necessary in many cases of the disease: by opening the air passages below the part inflamed, an instantaneous relief is afforded, and the patient will live so much the longer. This cannot have the effect of curing the disease, but it has the effect of enabling the patient to live longer; and, therefore, to live till you adopt other means to cure him. I have had to speak, as a pathologist, of some very beautiful cases of this description where the combined force of the two great divisions of the profession have most decidedly saved the patient's life, but where neither would have done alone. A mere opening of the larynx will not cure the inflammation, and the patient may die before the mercury can have any effect; and, therefore, it is necessary constantly to watch the patient, and if the symptoms decidedly grow worse, the operation ought to be performed without delay, because it is an operation which is by no means dangerous; it is one which, if properly performed, can do no harm. The dyspnoea arises, from an œdematous state of the rima glottidis; and if you enable the patient to breathe notwithstanding that, as the inflammation subsides the œdema goes down. The paroxysms of difficulty of breathing clearly arise from spasm; and if an opening be made below, so that the patient can breathe through it, the disease may

occasion as much spasm as it chooses above, but your patient is safe.

You are aware that the least pressure in these parts will occasion spasmodic difficulty of breathing. In the Medico Chirurgical Transactions you will see a case described by Mr. Lawrence of a person who had attacks of dyspnœa which arose from the mere pressure of an aneurism of the arteria innominata. The aneurism slightly pressed on the trachea; the pressure was as slight as it could be, to be pressure; the direct diminution of the trachea by the tumour was found to be very inconsiderable, but it was sufficient to produce irritation, and to cause violent attacks of spasmodic dyspnœa.

But the inflammation itself, to say nothing of this œdema and tension of the parts—the inflammation of the membrane itself will throw the parts around into a violent spasm, just as you see in inflammation of the urethra and bladder. When inflammation exists about the larynx, the person is continually seized with a violent difficulty of breathing, without any pressure, but merely by the irritation; and many persons, without any inflammation about these parts deserving the name of laryngitis, will die in a moment. I have seen several cases of persons who have been seized with a sudden difficulty of breathing when they were supposed to have only a common sore throat, some of whom have died in the course of three or four hours, and some in a minute. When inflammation exists in the fauces, and extends to the glottis, without descending to the larynx and producing laryngitis, the person may be seized with spasmodic difficulty of breathing, and die instantly. I saw a young man about eight years ago who had been frightened. This made him nervous, and therefore liable to spasmodic diseases. He merely caught a common sore throat, for which six leeches were applied; and while the ward was full of medical men, a violent spasm seized his throat, and he died instantly. I have seen several patients with more decided inflammation than this, but still not deserving the name of laryngitis, who have died in a moment. Whenever a patient becomes very hoarse, and you hear his voice hissing, sibilous, through the larynx, and find the tube is tender on pressure, alarm should instantly be taken, and the disease treated actively, although the patient may make no particular complaint himself, and although, on looking into the throat, you cannot discover any thing particular.

MORGAGNI and others have described it, proving that it is nothing new to medical men; but from there being no outward and visible sign, in some cases it was called *angina occulta*, to distinguish it from common sore throat, which they called *angina manifesta*.

CHRONIC LARYNGITIS.

A much more common disease, however, than this is chronic laryngitis, an affection of which you will see many cases.

This species of the disease is attended by a very hoarse cough, and likewise a hoarseness of the voice; and sometimes the person, both when coughing and talking, appears almost to make a sort of crowing sound. The alterations in the voice are very great; there is hoarseness, roughness, squeaking, and crowing of the voice, and sometimes

it is nearly suppressed. The cough too varies in the same way; sometimes it is very hoarse, and sometimes very shrill. The respiration occasionally in chronic laryngitis is hissing, but not necessarily so; it is observed in most cases, yet by no means in all. There is a copious discharge of mucus, and sometime pus. There is in all these cases, I believe, at least I have always observed it, pain on pressure. If the lungs be sound, you must learn that chiefly by means of auscultation, by listening and finding the sounds of the chest healthy, finding there is no pectoriloquy. However, it is sometimes difficult, when the voice is nearly suppressed, to make up one's mind on the subject. Some say they can tell us as well when the voice is suppressed as when it is not.

This disease may occasion great emaciation, and therefore in that respect, as well as on account of the discharge of mucus of a puriform character, patients may easily be supposed to be in a state of pulmonary consumption; and it is a fact that the disease does sometimes co-exist with phthisis pulmonalis. After death from this disease we find the common results of chronic inflammation. The mucous membrane is frequently thickened, frequently indurated, frequently it is granulated; it is exceedingly rough, and there are numerous little cavities, if I may so call them; and frequently it is ulcerated. The same appearances very often extend along the trachea.

TREATMENT.

The best method, that you can adopt is, the repeated application of leeches, and subsequently of blisters; the internal exhibition of mercury too is of the greatest use. But if the disease be a scrofulous inflammation, of course mercury will do no good, but rather make things worse. It is best in almost all cases to give it a fair trial, taking care not to hurt the constitution, but to make the mouth moderately sore, and keep it so—to treat it as a mere chronic inflammation, and it will very frequently subside, but far more frequently, I believe, the treatment is very unsatisfactory. It is frequently necessary, on account of the sufferings of the patient, and the harassing cough, to give narcotics—conium answers exceedingly well—to procure sleep. Some have found relief from the inhalation of the fumes of tar, and others from the inhalation of chlorine, either by diffusing it through the apartment of the patient, or making him breathe through water in which a quantity of chlorine exists; but it is very necessary in all these cases not to push the matter to irritation. Tar fumes, chlorine, and many of these things will produce very great irritation, even in a small quantity; and therefore it is right always to begin by impregnating the water, or the apartment, very moderately, and if it produce no irritation, then you may go on to a great extent. Some have recommended as a medicine internally, copaiva and cubebs, because they have done good in irritation of another mucous membrane. I have not been satisfied with these. Some have recommended the application of lunar caustic. A solution is made of nitrate of silver, into which a sponge is dipped, and pressed down to the rima glottidis, so as to produce a new action there, and lessen the morbid sensibility,

hoping that the same good change may spread downwards which is observed at the very spot at which the nitrate of silver is applied. I have known this remedy employed, and, fruitlessly ; but if the disease were situated merely at the rima glottidis, good would be done by it. I have seen cases in which I understood it had been employed without any harm.

It is right you should be aware that the voice is sometimes lost, or reduced to a mere whisper, without any inflammation—without any œdema—without any obstruction, as it would appear, of the parts ; and this occurs chiefly in females, and is altogether what we call a nervous complaint. It occurs sometimes in boys as well as in girls, but it is chiefly an affection of children.

APHONIA.

I think it is easily made out. There is no tenderness of the larynx on pressure ; there are other nervous symptoms in the body, and the person is weak and nervous altogether. Frequently there is no tenderness on pressure, and frequently no cough : or if there be cough, there is nothing but that—no pain with it—no expectoration, and the disease frequently comes on suddenly, and goes off in the same manner. It has frequently come on in the course of a few minutes—at any rate in a day ; it ceases perhaps as suddenly, and then comes on again.

This is altogether a nervous affection of the part ; there is no danger whatever, but sometimes a person loses his voice for many months, and I have heard of cases where they have lost it for years, and from a sudden circumstance, without any apparent reason, the voice will return.

I do not know any mode of treatment better than the shower-bath, and attending to the improvement of the general health.

TRACHEITIS—CROUP.

Acute inflammation, of a very violent description, when it attacks the larger portion of the air-tubes, in children is situated, for the most part, lower down than when it occurs in adults. That intense, violent, adhesive inflammation—inflammation, at least, causing a portion of fibrin to be thrown out—which attacks adults, usually affects the larynx ; so that laryngitis is the disease of adults ; and the disease of children, corresponding with this, is croup, cynanche trachealis, or or more properly tracheitis. The disease has been called *angina trachealis*, because there is a quantity of lymph formed : in this country it is called *croup* : in the East, I understand, and perhaps in other places, it is called *roup*. This disease is marked by a rough, clanging, ringing cough—a cough giving you the idea of sound conveyed through a small brass pipe. Besides this cough, if the disease be severe, there is hissing, sibilous respiration ; but it is in the inspiration chiefly that it is heard. It is harsh, rough, shrill, or hissing ; there being various modifications. The voice, too, is either harsh, crowing, or nearly suppressed. There is a difficulty of breathing, and this is felt particularly during inspiration. There is no difficulty in swal-

lowing ; no pain in the throat, except at the lowest part ; no pain in the larynx, where there is always pain or tenderness in laryngitis ; but in croup, at the lowest part where the trachea exists, there is frequently pain on pressure. The expectoration is mucous, sometimes with fibrin and shreds of lymph. As this is a violent disease, there is violent pyrexia. During the first stage the face is flushed, the pulse is rapid, and there is great anxiety of countenance. Sometimes the peculiar clanging cough is heard for some days before the child is ill enough to shew its complaint ; so that many mothers have been surprised, on being told by a medical attendant, who was accidentally in the house, and heard this peculiar cough, that the child was in danger. The disease may last from twenty-four hours to three or four days, or even several days, and the child may die either completely exhausted, or be suddenly cut off in a moment by spasm. Just as death sometimes occurs suddenly, so does amendment. Generally, patients recover by degrees ; but sometimes they recover very rapidly, almost suddenly. When recovery is exceedingly slow, shreds of fibrin are perhaps spit up for several weeks.

On examination after death, we find, redness of the trachea ; and such is the intensity of the inflammation, that lymph lies upon the red membrane, sometimes forming a complete tube, and even extending into the bronchiæ. Besides this tube of lymph, which is so continually seen, we frequently observe a quantity of puriform and even bloody fluid in the air-tubes. There is not merely a secretion of fibrin, but likewise of puriform fluid, exactly as occurs in a serous membrane. When you open an inflamed serous membrane, you always see lymph lying upon the affected part ; but, besides that, you always see more or less turbid serum, even so thick and yellow as to approach to pus ; and sometimes there is pus. So in a mucous membrane, when it is inflamed very intensely, besides fibrin you see a quantity of thin fluid inclining more or less to pus, till at last you see actual pus ; you also see a bloody fluid.

This disease occurs chiefly in children, between weaning and puberty. It is occasionally seen in infants at the breast, but most frequently not till they are weaned. Professor HOME says, that the sooner children are weaned, the sooner they are liable to it. It chiefly affects those of full habit of body.

The cause is undoubtedly, in almost every instance, cold and wet ; it occurs, therefore, more frequently in winter and spring than at other times : and if it occurs in summer, it is generally when a damp evening has succeeded to a hot day. It is seen most frequently in a situation near the water side—in fact, in all damp situations. It is more frequent, too, in northern, than in southern latitudes. It is sometimes epidemic ; that is to say, a great number of children, in particular seasons, are affected with it. You know that an endeavour has been made to pervert the word *epidemic* from its common original meaning—that which attacks people at large. In that sense you have a peculiar signification, so as to distinguish between epidemic and contagious diseases ; but contagious diseases may be epidemic, not from this cause or that, but merely because they extend temporarily over a

whole district at once. But although this disease is frequently epidemic, I cannot believe that it is ever contagious. It certainly does often affect more than one in a family at once; but this may only arise from all the children in the family being exposed to the cause at the same time, and from another circumstance—that there is a constant tendency to it, and therefore children in the same family may be supposed liable to the same disease. Now and then a peculiarly striking circumstance takes place, and we are inclined to believe that the disease must be contagious; but I think mistakes are frequently made in the case of croup. And when it occurs in the same family this circumstance might explain it, together with the additional circumstance, that all constitutions are predisposed to the same disease. Professor DUPUY says, that it once occurred in dogs at Alfort, and that the same appearances were observed in them as in human beings.

TREATMENT.

It would be right to bleed from the arm, or jugular vein, perhaps, and apply a number of leeches over the throat; to consider it as an inflammatory disease, that must be treated briskly. I should prefer leeches to a blister, and general bleeding to local; but I should follow up general by local bleeding. After the leech bites had bled well by means of a poultice, I would repeat them, if necessary, and then apply a blister. There is extreme danger here; and therefore mercury should be given with the greatest freedom. You will find, whatever disputes there are about mercury, that in acute hydrocephalus, in laryngitis, and tracheitis, mercury is of the highest importance. Children will bear a larger quantity of mercury in proportion than adults, and it would be right to give a child as much as it would bear, every two or three hours, without vomiting and purging. This is a much better practice than emetics. Many cases will get well with emetics, but this will be successful in a larger number of instances. The warm-bath is useful, but it is not of high importance; and, when the leeches have bled well, some have advised applying cold to the throat. I should think there can be no impropriety in it. Seeing the good effects of applying ice even to the heads of children, there can be no impropriety in applying ice in a bladder to the throat.

Unfortunately there is in this disease, besides laryngitis and tracheitis, frequently inflammation lower down; that is to say, the bronchial tubes, in their minute ramifications, are frequently affected at the same time, so that that portion of the disease will kill the patient, even although you subdue the inflammation of the trachea. Bronchotomy can only be a temporary measure; it may enable the patient to breathe well for the time; but of course it can have no effect upon the inflammation. If the disease were not so extensive it might be beneficial, by giving you time to cure the affection; but, unfortunately, you frequently have inflammation of the trachea, larynx, and all the ramifications of the bronchiæ, so that it is hardly possible for the child to recover from such a mass of disease. However, bronchotomy has been tried in many cases, and failed, and I have myself employed it without success. You will find a number of cases mentioned where

it was of no use, though it occasionally appears to have been so. Mr. CHEVALIER made an opening in the trachea, the consequence of which was the discharge of a quantity of viscid bloody fluid, and the patient speedily recovered. If, after the ordinary treatment of the disease,—good bleeding, mercury, blistering, the application of cold, and, if you choose, the administration of emetics,—if you cannot make the mouth more tender, nor bleed any farther, and yet the child is dying,—it would be better, if the friends would allow it, to make an opening than not, in order to give the patient a chance. I would not do it till I had told the parents that the child would die without it, and most likely die when it was done; because otherwise it would be said, that you had cut the child's throat, and killed it.

In America they recommend a decoction of seneca in this disease: but it is a stimulating substance, and, if it does good, I cannot believe that it is in the active inflammatory stage. When the inflammation is subsiding, and great secretion is going on, it may stimulate the parts and brace them up; but I have not been tempted to give the remedy in the active acute form of the disease.

SPASMODIC CROUP.

This disease, however, occasionally takes place without any inflammation, or at least any important inflammation. Children, who have once had the croup, will frequently, on catching cold, have a crouping cough, a little hoarseness, so as really to labour under the signs of croup; but you find in such cases that the pulse is not quickened, and the child is not particularly ill. If a child have once had the croup, there is in general little fear from other attacks. If parts have been once inflamed, they soon fall into a state of inflammation again; but then it is not active, and sometimes the inflammation is scarcely perceptible, and the disease appears to be almost entirely spasmodic. I have known children have six or seven attacks.

TREATMENT.

It is always safe in these cases to apply antiphlogistic treatment—not vigorously, as in the first instance, but to put a number of leeches on the throat, and administer calomel once or twice a day, and if you choose, an emetic. These means generally dissipate the disease. I know that some patients neither require leeching nor purging, and you benefit them at once by an emetic. A slight inflammation has occurred, it has thrown the parts into a state of spasm, and an emetic will frequently cure it; but it is generally safer, unless you know that an emetic has cured the child before, to apply leeches to the throat, and give it a dose or two of calomel. You are never sure that it is merely a spasm. You cannot tell that there is not some little inflammation, and you cannot tell that it is not increasing. If the child be not worse, but plays about, then the next thing is to give iron, to lessen morbid irritability in any part of the body. If there be inflammation it will do no good; but if there be morbid irritability, I know it is one of the best things. I shall have occasion to state, that the spasmodic cough, which is of a ringing character,

yields the most readily to iron. It is best not to begin with it, but to adopt antiphlogistic treatment a day or two, and then you may give iron safely. You may give the carbonate in treacle, or the sulphate in sugar, or in tea. Children will sometimes not take it without.

Besides simple inflammation of the larynx and trachea, these parts are subject to various organic diseases. The larynx is frequently in a state of ulceration; not unfrequently there are excrescences upon it, looking, to all appearance, like warts: they are the same as warts on the genitals. Sometimes scrofulous tubercles form there; sometimes you have scrofulous abscesses formed in the cellular membrane, and sometimes you will have cancer and melanoid deposit.

It is impossible to make a diagnosis during life, in the greater number of cases, between simple chronic inflammation of the larynx and these organic changes. You find a person with tenderness of the larynx; you find him hoarse; you find his voice perhaps reduced to a whisper; you find him cough a great deal, and it is ragged or shrill; you find him waste away, his pulse perhaps constantly quick; and you find tenderness, showing altogether that the larynx is diseased; but I am not able to distinguish between simple chronic inflammation of these parts and ulceration, or the existence of excrescences, or the existence of various deposits.

TREATMENT.

In the commencement of such cases I should recommend you to apply the remedies of chronic inflammation, repeating leeches over and over again; blisters afterwards if you choose; a seton in the neighbourhood of the larynx, and the exhibition of mercury; narcotics, of course, to lessen the irritation. If these things do no good, if you find the patient get worse, notwithstanding you are applying them vigorously, that the corporeal strength is decaying, and the symptoms in the throat so far from diminishing are increasing, then you may suspect there is organic disease. It is only in the latter stages of the disease that any distinction can be made: when my remedies fail, I then begin to think there is organic disease. Occasionally the larynx becomes completely ossified, and deglutition is rendered very difficult—the larynx becomes more or less immovable—it cannot move up and down; the passage of the tube becomes so much diminished that the patient can scarcely swallow, and indeed he dies of the disease. The trachea, likewise, sometimes gradually becomes ossified, and all the various diseases that I mentioned under the head of organic affections, occur here—melanosis, scirrhus, cancer, and encephaloid disease. But more frequently we have thickening of the mucous membrane, induration, considerable excrescences, and scrofulous tumors, and then the common effects of inflammation, ulceration, the formation of abscesses, and, finally, a carious state of the cartilages.

CATARRH.

I shall call your attention to catarrh, or common cold. This is a very slight inflammation of the larynx, trachea, bronchiæ, and mucous membrane above these parts, and that portion called the *Schneiderian*

membrane, and not only that, but the membrane of the frontal sinuses, and even of the conjunctiva of the eyes. The inflammation in this disease is not by any means so intense as that which occurs in laryngitis and tracheitis, but is an instance of common inflammation of a mucous membrane. It is in general a very slight disease: but it extends through the whole tract from the conjunctiva of the eyes, running down the lachrymal canal, and not only affecting the membrane of the nostrils, but with them the frontal sinuses and the throat, tongue, larynx, trachea, and bronchiæ. It is a very slight inflammation, but as it affects such an extent of surface you will find dangerous symptoms more frequently than you are aware of. This in medical language is called catarrh from *καταρρεω*, to flow down, and in common language we call it "a cold."

There is a feeling at the same time of soreness throughout the body, and generally there is a tenderness of the surface, which makes the person uneasy if he press much upon any one part. There is stiffness, and an aching of the whole body; it is, however, chiefly felt in the back of the neck. There is likewise headache—I presume, from the congestion of the frontal sinuses: perhaps there may be more or less congestion within the head. There is likewise chilliness and morbid heat; the patient is chilly and creeps towards the fire, and yet if you touch him he is hotter than he should be. If you make the observation yourself, you will find this to be the case; but there is great sensibility of the surface, so that the least breath of air blowing upon you makes you cold. The mind is also affected. There is heaviness of the head; sometimes it amounts to stupor. From the state of the conjunctiva there is frequently stiffness and smarting of the eyes; and there is, from the irritation within the nostrils, sneezing. There is also, from the disturbance of the membrane, loss or impairment of smell. Many things may be smelt as well as tasted, and these are tasted just as acutely as before. From the inflammation in the air passages the breath is hot, so that when you have a cold, if you expire the air from the lips you find it hot, as though it came from a hot place. There is generally, too, hoarseness, some cough, and a little soreness at the front of the chest. When the mucous membrane is inflamed, it is sore at the division of the trachea, and you find soreness in the situation of the larger branches of the bronchiæ.

All the parts that I have mentioned discharge; they are all covered with mucous membrane, if the conjunctiva can be considered a mucous membrane; they are all in a state of slight inflammation, and therefore in a state of discharge. The eyes run, called *lachrymation*; and there is a discharge from the nose, called in Latin *distillatio*, or, as we say, *catarrhus*: the discharge, too, from the nose, as well as the distillation, is called *coryza*. At first the secretion is limpid, like drops of water from a rock: it is thin and transparent, and afterwards it grows more copious and thick. As the symptoms decline, the quantity of the secretion of course declines; and, as all the symptoms go away, there frequently arises a little inflammation about the mouth and nose, and an eruption. When the cold goes

off, and the inflammation within ceases, it is very common for slight inflammation to take place of an herpetic character about the mouth. During the existence of the disease the tongue is white, the skin dry, and the urine red, and when all is declining, the urine has a late-ritious sediment, the common symptom of inflammation. There is also a loss of appetite. The stomach is much affected in this disease, people cannot eat, and sometimes there is also an affection of the mucous membrane down the cesophagus and stomach. There is heat and pain there, and tenderness on pressure. The pulse during the disease is quick. The affection has a disposition to begin above, and travel downwards, so that persons know very well which part of the mucous membrane is inflamed at different times. When it is the mucous membrane of the frontal sinuses and nose, they say it is in the head, they feel so heavy and stupid. Then that goes off, and they begin to cough. As it leaves the upper part it generally increases in the lower, and then, after a tickling in the throat, and hoarseness, there is frequently pain down the front of the chest, and cough, and also more or less difficulty of breathing; and after that the tickling of the throat is diminished. But though it travels downwards, it frequently mounts up again. Sometimes people are beset with it in all parts at once, but generally, if the disease be slight, you see it travel downwards; and if a person have a relapse, it will come again above.

The disease will last from twenty-four hours to some weeks, and sometimes it is the forerunner, as I stated before, of violent inflammation of the larynx, sometimes of the bronchiæ. It is often the prelude to various active inflammatory diseases.

The common cause of this affection is the application of cold, especially when united with moisture; and, again, especially when the body is overheated and perspiring, and more particularly when it is applied partially. Many persons have a common cold in a few minutes, if exposed to a draught; but they will bear exposure to the air without any such effect. Mere cold will cause it, without any subsequent application; because, when you sit in a room without a fire when you ought to have one, the nose will begin to run before you go into a room with a fire; but while you remain there you begin to sneeze, symptoms of catarrh come on, proving the action of the cold itself. Most probably the constriction of the skin being so great, the Schneiderian membrane passes into great activity. Change of residence appears to increase the susceptibility to the disease. Some susceptible people always take cold if they change their residence, and some will catch cold without leaving their beds.

TREATMENT.

The best mode of treatment is to keep the body perfectly warm, so as to get rid of the chilliness. It is usual to increase perspiration by wine and brandy, and stimuli; but it is better to do it by caloric itself. The warm-bath or a vapour-bath is very good, and a local bath is also very proper; and when you are warm, plenty of hot liquids, without any wine or brandy, are exceedingly useful. If you

put wine and brandy into hot liquors, there will most likely be headache afterwards. During this time a person loses his appetite, and therefore nature indicates that he should take but little food, and that that should be chiefly fluids and of a weak nature. When a person has been ill any time, one of the best modes of getting rid of the cold is by perspiring through exercise—exercise in the open air; or good exercise, at any rate, so as to produce considerable perspiration, is one of the best things. But great care must be taken in this particular not to catch cold when perspiration is induced: if a person allow himself to cool suddenly when he is hot, his last state will be worse than his first. Good brisk walking or dumb bells, or battle-door and shuttlecock, or skipping, are highly serviceable.

INFLUENZA.

This disease is sometimes epidemic, and then it goes by the name influenza. We have numerous returns of this epidemic catarrh throughout Europe, and it is not confined to the human race, but horses, dogs, and cats are all liable to it.

The symptoms are usually more severe than in common catarrh: when the disease is epidemic, it is not so slight as when sporadic. When epidemic, there is generally complete loss of appetite, great lassitude and debility, and a very severe cough. It will attack persons both out of doors and in doors indiscriminately, and also individuals at sea. Sometimes it affects every member of a family at once, and sometimes it affects them in succession.

There has been a great difference of opinion respecting the contagiousness of different influenzæ: some contend that this and that influenza is merely epidemic, and others, that it is epidemic through its contagious nature. We have had epidemics of this description, but I never saw any thing to make me believe that the disease was contagious; but I should be sorry to deny it merely because the cases that came under my notice did not appear to be so. You will find, in medical books, strong facts to shew that it is contagious; and then there are others, equally strong, tending to shew the contrary; just as is the case with regard to cholera. The epidemic influenza attacks people of all ages, but children less than others. It is sometimes fatal to persons who have chronic disease of the chest. An influenza is sufficient to stir up inflammation when it exists in any part of the body. The disease lasts, when it is not epidemic, but sporadic, from a few days to a few weeks; and when it is strictly epidemic, it generally continues for a few months.

DISEASES OF THE CHEST.—BRONCHITIS.

When inflammation attacks the air-passages at large, and particularly those within the chest—the ramifications of the bronchiæ, and affects these latter very severely, the disease is termed “bronchitis,”—inflammation of the bronchiæ. This is the most common kind of inflammation of the lungs: the far greater number who have what is called inflammation of the lungs, have inflammation of the ramifications of the bronchiæ, so that there is now nothing heard of

but bronchitis; whereas we formerly used to hear only of pneumonia, or peripneumonia. But since it has been ascertained that the inflammation which we every day see resides in the mucous membrane of the bronchiæ, the word "inflammation of the lungs" has fallen into less frequent use, and we have instead the term "bronchitis." Certainly one portion of the substance of the lungs is made up of the bronchial tubes, and therefore the term "inflammation of the substance of the lungs" is very proper, because those tubes are an integral part of the lungs. In this affection, which you see every day, the breathing is quick and shallow: to make up for the shallowness, the patient breathes quickly. If the patient breathe deeply, the mucous membrane is put upon the stretch so much that it occasions great uneasiness; he is more comfortable by taking a small quantity of air into the chest, but it must be accomplished more frequently than ordinarily. There is a sense of constriction of the chest, and soreness frequently about the larger bronchiæ. It is sometimes difficult for a patient to lie down, but in other cases he can do so perfectly well. In some persons you will see intense cough tearing them: if they even turn a little in bed, it shakes the bronchial membrane sufficiently to produce cough. Some cannot turn—some can scarcely lift their arms—they cannot produce so slight a motion of the chest as that without experiencing cough. The cough of other persons is by no means severe; if it be severe, people are confined to their bed, but if not, the motion of exercise of course makes the breathing more difficult. From the first there is some expectoration; the mucous membrane cannot be so irritated without secreting more than it should, and this expectoration may increase to a very great amount. If the inflammation become very severe, it diminishes again, but still the patient has more secretion than in health. If a person have a very active inflammation the secretion diminishes, and then, when the disease declines, or degenerates into the passive or atonic form, the secretion may become immense. At first it is thin, but it soon becomes thick, and frequently of a very yellow colour, so as to look almost like pus; only it is very glutinous, and swims in water for the most part. You may see it very black, as black as if soot had been mixed with it; but there are various other shades—blue, green, yellow, and white. This expectoration is not excessively tenacious; it is certainly viscid, but not so tenacious as when the air-cells are inflamed. In the latter case, the matter is so tenacious, that if a person spit into a vessel and turn it up, it will not run, but adhere to the sides. From the violence of the cough and the congestion, there is no longer a probability of the disease affecting the mucous membrane above. There is sometimes very violent headache when the cough takes place. The headache is of that character, when it exists at all, that patients almost always describe it as a splitting headache; and sometimes there is drowsiness. There is great congestion in the head, and a more or less inflammatory state.

The pulse is accelerated; you may have it at 100, or even above that. As the inflammation affects a mucous membrane, the pulse is generally large and soft; of course it may be hard—there is great

variety in these things—but for the most part it is full, and rather soft, or at any rate not a firm pulse. There is not the softness of debility, but a pulse of no remarkable power. The skin is frequently dry, and, of course, the tongue is dry, and generally of a dirtyish white colour, and sometimes it is covered with a great deal of mucus. The skin for the most part is hot, and now and then you see persons sweat violently. The face too shows great congestion; general congestion probably takes place, for in many cases there is drowsiness and headache, and there is likewise redness and fulness of the face. At the moment of coughing you see the veins of the temple and neck greatly distended, and the whole face become turgid. If the disease go from bad to worse, the patient cannot lie down at all; his face becomes livid, from the congestion; the lips become purple; and I have seen the face become really black—of such a hue, that I could not have believed it had been the result of bronchitis if I had had it represented to me—as dark as when a patient has taken nitrate of silver to a great amount, or there has been a communication between the two ventricles of the heart. The pulse at last becomes weaker and softer, and at the very last vermicular; the surface becomes blue, and both the forehead and chin are bedewed with a cold clammy perspiration. In this state of things the expectoration becomes very scanty, or ceases altogether, not because it is not secreted, but the patient is too weak to expectorate it, so that he is almost drowned inwardly by mucus. In cases which are left to themselves, or badly treated, it is said that about the fifth or sixth day dyspnœa comes on, which is followed by death. If, on the other hand, improvement take place, the constriction is removed; the cough is not much diminished, but it does not hurt the patient as it did; there is copious expectoration; the pulse becomes slower and softer, without, however, becoming so soft as in health; the surface perspires, and the tongue becomes moist; still, if the case be severe, there is a discharge of stuff which appears puriform. In other cases the patient neither gets well nor dies, and then there is considerable expectoration; still the pulse is kept up, and still it is hard. In consequence of the cough he does not gain strength, but perhaps becomes more and more emaciated; he has night sweats, and at the end of many months he may die, or get all but well, and then when he is exposed to a common cold, he may have difficulty of breathing and more or less bronchitis, so that some persons who have been ill will never be able to get through a winter without an attack of asthma—that is, shortness of breathing.

AUSCULTATORY SIGNS—VARIOUS RATTLES.

If you listen to the chest of a healthy person, you hear at every inspiration and expiration a slight murmuring, and this is called the *respiratory murmur*. If you listen to the breathing of a child, you find it louder than in adults, so that it has derived the name of *puerile* respiration, to distinguish it from the respiration of adults, on account of the difference of sound with which it is accompanied. I believe this arises from the fact, that there are a greater number of

air cells in children, in proportion to the size of the lungs, than there are in adults. If the tubes through which the air passes are altered in diameter, or there are more contents in them than usual—if instead of being moistened there be an abundance of mucus, and mucus of a different consistence to what it usually is, you must suppose that there would be a difference of sound from that which is observed in health. As bronchitis is an inflammation of the inner surface of these tubes, you necessarily have a very different sound in this disease from what there is in health. If you listen over the part that is inflamed, you hear, instead of the natural murmur, a sound both louder and rougher than natural; and if the inflammation be very great, you then have the sound so loud and rough as to be a *snoring* sound, as if some little animal were snoring. That is called the noise of *sonorous* respiration, or rattle; or some choose to use the Latin word *rhonchus*; and some say *rale*. You frequently have a squeaking or shrill sound, something like the chirping of a bird, and that is termed *sibilous rattle*. It is frequently shrill, like the noise made by a grasshopper. One or both of these phenomena we constantly observe. Of course you do not hear them all over the chest, but only at those parts where the tubes are affected. All at once, while you are listening, you will occasionally find the sound entirely cease; and if you continue to listen, you hear it again as before, or if you make the person cough, you then hear the sound of respiration again. Now this is peculiar to this disease, and it arises, it is supposed, from a large tube becoming internally temporarily obstructed by mucus, so that its ramifications get no air, and, of course, if the mucus be removed, the air enters as before. If you ever find the sound of respiration cease in a part, if you only make the patient cough, that is generally sufficient to dislodge the mucus, and the respiration returns. This is called by LAENNEC a pathognomonic sign of this disease. If you strike over the chest, in old persons more especially, with the intervention of some solid body, you have a hollow sound. The sound is much increased if a piece of ivory be laid on the chest, instead of striking the bare chest. If you strike with the fingers, you have a loud sound; but a piece of ivory is one of the best things you can employ.

When you have hydro-thorax, or a deposition in the lungs, of course if you strike the part, in lieu of a hollow you have a dead sound, as if you struck the shoulder or thigh. In bronchitis the sound on percussion is not altered; if you strike over every part of the chest, you find it sound as in health. At the very moment even at which you may cease to hear respiration at one part, if you strike that part you still hear a hollow sound, and for this reason—although respiration is not going on, there is air there; there is no fluid collected, no solidification of the lungs, but the air is there much as it is in health, and therefore on striking you have the natural hollow sound. You have this *wheezing*, as we call it in English, not only when the person is speaking, but in a much more marked degree when he is coughing. If you have a doubt about the nature of the disease, as to whether it is bronchitis or not, because you do not hear a *wheezing* in the chest, such as *sonorous* or *sibilous rattle*, if you make the

patient cough, you may then tell the nature of the case to a certainty. In coughing there is generally a more violent respiration, and as soon as you produce that, it will have the desired effect; and therefore, if you be not quite sure as to the nature of the complaint, it is always well to make the patient cough. You will also frequently find this disease at the back and root of the lungs when you will not find it anywhere else. In that situation continually, both in respiration and in coughing, sonorous and sibilous rattles are heard, when they are heard no where else.

For the purpose of listening to the chest, in order to hear these things, some employ the naked ear, but it appears to me that it would be better to employ the intervention of a foreign substance—of a piece of wood. I think if you only employ the ear, you cannot come on every part of the chest so frequently as you wish, and it is not so convenient.

I do not think that persons who use the ear only, do so well as others. I have known such persons give extraordinary opinions; and a great many of them are not capable of saying which instrument is the best. When you listen to the sounds of respiration, it is always best to take out the plug, and it is advisable to have the hollow extremity placed on the chest, for the sound is much increased by it. There are instances in which you expect an excavation, and you must then put on the top. I need not say that, in most instances, persons can tell a case of bronchitis without this, but sometimes you cannot. Sometimes a patient will breathe quick, and the pulse will be quick, and yet you are at a loss to say what the disease is. Sometimes I have known it difficult to say whether the disease was in the chest or not; whereas, by listening to the chest, and making the patient breathe quickly and cough, the disease has been made fairly out. If you listen to the respiration in a case where you suppose there is bronchitis, it is right to make the patient breathe as quick as you can, and you will then hear the sounds more distinctly; it causes still more full respiration. If you make him breathe something between a common respiration and a cough, it answers very well. It is right to make him fetch a deep inspiration every now and then.

DISEASES OF THE CHEST—BRONCHITIS—TREATMENT.

You have only to bleed the patient well, and follow it up by local bleeding; and according to some the latter answers better at the back than at the front. I do not know that this is the case, but some say they have contrasted the two modes. I have generally been contented with cupping at the front. Some say there is more advantage from cupping on each side of the spine, and others prefer the root of the lungs and the large vessels. You will find mercury of the greatest use, I have had so many cases that have yielded the moment the mouth has become sore. Or if you choose, instead of making the mouth sore, you will derive advantage from the exhibition of tartar emetic in large doses, so as to keep the patient nauseated, and from time to time produce vomiting. Vomiting causes a great dis-

charge from the affected parts, and therefore it is more useful than in any other inflammation. In many inflammations it would be dangerous to practise vomiting; but in bronchitis, many trust, next to bleeding, to the exhibition of full doses of tartar emetic—a grain or more every three or four hours. I am not so satisfied with this plan as with making the mouth sore; but if the patient do not go on so fast as you could wish, then you may give tartar emetic afterwards. Blisters, low diet, and moderate purging, are also exceedingly proper. The treatment is that of common inflammation; and if it be well practised in time, and provided the patient be not the subject of chronic bronchitis, the treatment is easy enough. If the patient have acute supervening or chronic disease, your chance is slight; but even then the case must be treated on the same principles.

ASTHENIC BRONCHITIS.

This disease will sometimes destroy life in the most insidious manner. It will exist without pain, and then it may be easily passed over; it will frequently exist with little cough—not half the cough that you often have in common catarrh—and then also it may be easily passed over. The patient is considered to have a little cold; but there is such prostration of strength as surprises every body; and in three or four days the individual is past hope. I have known several cases of this description. This occurrence takes place particularly in those advanced in life, and therefore whenever you are consulted by individuals near sixty, or who have passed that age, and you observe difficulty of breathing, the respiration hard, and the pulse quicker than it ought to be, it is well to listen to the chest, and find what disease he has. You may find the respiration to be sonorous, sibilous, or both, or perhaps mucous, and the patient may be labouring under excessive inflammation of the bronchiæ. You may hear these sounds in many parts of the chest.

This species of the affection is called *asthenic bronchitis*—that is, that form of inflammation which is described as *atonic*, where the inflammation, however active, may be attended by no great strength of constitution; and it very soon degenerates into passive inflammation, or the patient absolutely sinks. There is no power in the system, but the parts themselves are more or less inflamed; and at that time of life, with such a state of the constitution, the inflammation is sufficient to expend all the powers, and at the end of a few days the patient sinks. It is therefore necessary, when a patient in the decline of life has a cold sufficient to make him call in medical assistance, carefully to examine the breathing, and observe whether it is frequent or not; to listen all over the chest, to ascertain whether there is not a pretty considerable degree of bronchitis—considerable either in degree or extent; for sometimes it is inconsiderable in degree, but considerable in extent, and that is quite sufficient to hurry the respiration.

TREATMENT.

Patients are usually seventy years of age, or older; they have

bronchitis; they cannot bear much bleeding; their powers are gone; and it is vain frequently to attempt to relieve them. All you can do is to bleed to two ounces, to bleed locally, apply blisters, get the mouth sore, and give emetics; but you cannot do much with any thing. When you hear sonorous and sibilous rattle degenerate into mucous rattle—if this be observed all over the chest—if the patients' powers be gone, and they cannot lift themselves in bed without aid, by good support, by wine and milk (and some give bark), you will occasionally get them through; but very frequently, in spite of all you can do, they will die. It is always provoking to lose a patient; but there is sometimes an especial reason for it, and you lose your credit because you have not alarmed the family as you should have done. The powers have been prostrated from time to time by something or other; but after the first bleeding (perhaps you cannot go far with it), blistering, a slight affection of the mouth, or nausea and vomiting, in a short time it is necessary to support the patient well; and if there be any doubt about the propriety of going on with this, it is better to do so, and to give an emetic every day, so as to clear out the chest and induce a free secretion, and during the rest of the day to give bark or quinine, and good nourishment, even wine. In these cases it is necessary to procure rest by means of opiates, or narcotics, of various descriptions; but the essential thing is to cure the bronchitis. The bronchitis frequently comes on in an insidious manner, and is accompanied by no constitutional signs, but it is in old people that this particularly happens; we never see it in children, or in the middle period of life.

It is this form of the disease particularly that has been called *peripneumonia notha*, as if there were bastard peripneumonia, not the real thing; but I believe the word is used very indefinitely. SYDENHAM applies this expression to common bronchitis, where the head is ready to split, and where all the symptoms present are such as I described as common to bronchitis. We had better abolish the term "*peripneumonia notha*," and remember that there is a disease of the air-tubes—that is, bronchitis, that may be active, accompanied by strength, and must be cured by strong measures; and that sometimes it is attended by no strength at all, or at least the strength will all go in a day or two, and whatever measures are adopted must be employed the first few days. I believe the word "*peripneumonia notha*" was supposed by some to apply to the latter state only. SYDENHAM, applies the word to those cases where there is considerable pain.

If the affected part be at a considerable distance from the front, you cannot hear them well; the nearer they are to the surface, the louder you hear them. Sometimes, if you place your hand over the chest, you discover a vibration at the same moment; but that is not always the case. It depends upon the extent, or the intensity of the affection; if the air pass with great difficulty, it shakes that portion of the chest.

CHRONIC BRONCHITIS.

Bronchitis is very frequently a chronic disease; sometimes, and

indeed generally, it is a mere degeneration of the acute form. The disease, when it has once begun, however acute it may be, in some persons never ceases; they have it at least every winter afterwards. I mentioned before, that another attack of the disease may not be active, but more or less passive, and some have the affection for two or three years, and then they die. But if you ask many asthmatic people, as they are called—that is, persons who have passive bronchitis every winter, they will tell you that it came on originally after severe inflammation of the lungs, or a very violent cold.

It is in the middle aged and young that chronic bronchitis is most frequently the consequence of a very acute affection; in old people it generally comes on very slowly, and is the consequence of what is nothing apparently but catarrh—that is to say, a very slight acute attack of bronchitis, in old persons, degenerates into chronic bronchitis. In old people too it comes on very imperceptibly; they will perhaps have a severe cold one winter, and have it for two or three months, and then the next winter they will have it still worse, and so they go on as long as they live, having it worse and worse every winter. This chronic bronchitis passes under the name of *asthma*. Now asthma is, properly speaking, a pectoral difficulty of breathing, because the causes of many difficulties of breathing are situated in the windpipe—the larynx. A spasmodic dyspnoea may be situated altogether in the larynx. A spasmodic difficulty of breathing, such as true asthma, is frequently united with inflammation or congestion of the mucous membrane of the bronchiæ, frequently united with chronic bronchitis; because when the mucous membrane is inflamed, it is commonly thrown into spasm, and unless it be removed the muscles are also thrown into a state of spasm. When the two diseases are united, they pass under the name of *humoral asthma*—that is, spasmodic difficulty of breathing, with a great quantity of fluids in the chest.

Chronic bronchitis is very frequently the cause of asthma. When a part has been inflamed frequently, it becomes excessively irritable, and at length spasm takes place; so that when a person has chronic bronchitis it is worse at one place than another—it is worse at one season than at another, and the patient will be seized all in a moment with an additional difficulty of breathing. You may have spasm sometimes without any inflammation of the bronchial tubes, but a common cause of spasmodic difficulty of breathing is certainly chronic bronchitis. Now this chronic bronchitis, whether it is united with a spasmodic condition or not, varies from a great congestion of the bronchial membrane, and of the whole lungs, down to a mere gleet—a mere flux or gleet of the mucous membrane, in which state the mucous membrane may be red, or without the ordinary signs of inflammation. You may have nothing but a mere gleet, such as occurs in gonorrhœa when it has long gone by, and which, of course, does not deserve the name of inflammation. It appears to me, as I mentioned in the introductory lectures, that in the latter case there is exactly the same state as we see in a serous membrane where it pours forth a great quantity of fluid, but you cannot discover signs of in-

inflammation at all; on the contrary, the parts are whiter than usual, having the appearance of satin.

In all these varieties of chronic bronchitis there is cough, there is copious expectoration, and the expectoration is of all descriptions—frothy, ropy, mucous, serous, watery, tenacious, and viscid, like gluten. Sometimes it is short and creamy, just like pus, and sometimes it is absolutely purulent. These varieties of expectoration frequently co-exist in different proportions, and sometimes they succeed each other. They are sweet, inodorous, or they may be dreadfully fetid; but there is no danger from the latter circumstance. I have seen persons with such a fetid expectoration that their sisters could not bear to sleep with them; and so fetid, that they were disagreeable to themselves, and yet no sign of danger whatever presented itself, and the patients did exceedingly well. They were going about without any particular ailment, except that they had a copious expectoration. In colour it will sometimes be bluish, sometimes black, yellow, green, brown, and even reddish, from having a little blood in it. Then, as to quantity, it may vary from a few ounces to two or three pints in the twenty-four hours. The other symptoms vary in intensity; there may be dyspnoea, or there may be none at all. There may be merely cough and expectoration; but that is more particularly the case in what may be called gleet *only* of the mucous membrane. When there is congestion of the lungs, or a spasmodic constriction, then you may have difficulty of breathing; and in other cases there may be such dyspnoea that the patient cannot lie down—such dyspnoea, that it will cause plethora of the head, face, and neck, distention of the jugulars, suffusion of the eyes, and I might almost say blackness of the nose and lips, and in some instances even of the whole face. The extremities in such cases of extreme congestion may become cold and blue, and the urine scanty. The pulse may be either full, or small and feeble. In short, there may be all those symptoms, which make many believe that hydro-thorax has existed—that unquestionably there has been water in the chest. It is in cases of this description that we are told every day, by those who never employ their ears, that such a patient has water in the chest, and yet on opening them you find none at all, or not sufficient to explain the symptoms; but I have found the lungs so congested with blood that they would not collapse. On listening with the ear, all this was clear before hand. Respiration was heard at the lowest part of the chest; whereas if water had been there you could not have heard it. On whatever side water exists, if the person be upright, there can be no respiration in the situation of the water, and on striking the part there can be no hollow sound; on the contrary, it is like striking the thigh. Chronic bronchitis, therefore, may sometimes exist without any congestion of the lungs at all, or there may be the greatest degree of congestion.

This disease is very easily recognized, without auscultation; but the simplicity of the affection can only be determined by the aid of the ear. A person may easily say that another has bronchitis, whether it is acute or chronic; but without the aid of the ear it is

frequently impossible to say whether there is not something worse than bronchitis. Bronchitis may be frequently cured, or so reduced that little may be left; but there may be another disease present of a fatal character, and you may only be able to ascertain this by the ear.

In chronic bronchitis you may have rattles in most or nearly all parts of the chest, and they will be in different parts on different days. You may have different rattles on different days—sonorous rattle one day, sibilous another, and mucous another. The mucous rattle is seldom continuous; it generally arises from the presence of a great quantity of mucus, and if patients clear themselves well, as they do, once or twice a day, then the mucous rattle ceases. In this, as in the acute affection, the respiration may cease occasionally in particular parts. It is by no means so frequently suspended as in the acute form of the disease, and some say that it never is; but occasionally it is lost, and then for the most part you hear it again.

That form of the disease which is characterised by a great expectoration, and that nearly like pus, attended by a little dyspnoea, but no signs of congestion, and is followed by emaciation, so that people waste, and at last become hectic, is continually mistaken for phthisis; while that, on the other hand, where there is congestion, is mistaken for hydro-thorax. That species which is so often passed by and mistaken for phthisis, may, if properly attended to, often be cured.

This form indeed is known best by the general symptoms, rather than by the peculiar symptoms I have already mentioned. It is ascertainable by the ear, and by the absence of other symptoms of phthisis; just as the congestive form of the disease is known, not only by passive symptoms, but by the absence of signs of hydro-thorax—induration of the lung, and complete obstruction of it, the absence of signs of disease of the heart, and so on. This form of the disease is known by the absence of pectoriloquy and other signs.

You will find in authors various names given to this kind of affection. When it occurs in old people it is called *catarrhus senilis*; that is, a kind of bronchitis, attended with various degrees of congestion, and frequently none, but gleet, and a great discharge. It is nothing more than an ordinary affection of a mucous membrane, that mucous membrane being the bronchiæ. LAENNEC considers it a particular form of chronic bronchitis, which is more frequently attended with asthmatic complaints than any other. He says, that what is called asthmatic spasmodic difficulty of breathing, most frequently arises from a kind of bronchitis in which the secretion is exceedingly viscid; where the mucous membrane is thickened and swelled, particularly in the small branches, so that some of them are nearly blocked up, and where the secretion is glutinous, even firmer than pitch, and disposed to form globules the size of hemp or millet seeds, semi-transparent, and of a pale grey colour. Where we find asthma occurring, we ought to suspect that it is not a pure disease, but dependent upon bronchitis; and we ought to ascertain whether the expectoration possesses the characters just enumerated. He says, these globular bodies are seen in the expectorated phlegm, and

occasionally less consistent, and grow yellow, and sometimes resemble the vitreous humour of the eye. Such an expectoration is hardly noticed by the patient in the midst of the common mucus which is secreted from the large branches, and gives rise to so slight a cough as not to merit his attention. He says, the difficulty of breathing—the spasmodic ailment, is almost the only thing of which the patient complains.

Here is a third disease, which may be supposed to exist without chronic bronchitis, and has continually been mistaken. Chronic bronchitis, attended by emaciation, may be mistaken for phthisis; where there is great congestion, it may be mistaken for water in the chest; but it appears that that particular form where there is an exceedingly viscid secretion, with small globular bodies, is continually mistaken for pure asthma.

When chronic bronchitis has existed for a length of time, it is very common for something more than congestion, and a thickening of the mucous membrane, to take place—it is very common for the bronchial tubes in the lungs to become dilated. Sometimes one, sometimes several branches, and occasionally the whole of the branches in one lung, will become so large, that those which naturally should admit only a fine probe, will have a canal equal to that of a common goose-quill, or even sufficient to admit a finger; and perhaps these very dilated branches are seen spreading to others nothing like so large as themselves. This is the consequence, in some instances, of chronic bronchitis; but whether it is that the particular tubes become hypertrophied, so as to grow to this diameter—grow, in every sense of the word—or whether they become so distended with mucus that they acquire this increased cavity, I cannot say. It is, however, by no means an uncommon occurrence. There are two or three varieties of this dilatation. Sometimes you see it throughout the tube, and it may occur in one tube or several; and not unfrequently the coats of the tube are hypertrophied and indurated at the same time. Secondly, the tubes are sometimes only enlarged in one spot, and then a mere cavity exists, which is occasionally so large that it will contain a nut. In a third form, the dilatation will occur at intervals, so that there is a series of small enlargements. The pulmonary texture, on being cut into, appears as if it were swollen with a number of small red tumors, and the whole become filled with a puriform secretion. In this last form the coats are said to be always thin, as though the dilatation had arisen merely from mucus; while, in the two first forms that I have mentioned, the coats are generally hypertrophied, and the dilatation appears to be the result of the hypertrophy. Hence it would appear, that this dilatation occurs sometimes from hypertrophy, and sometimes from a mere obstruction by mucus; and the result is, that, in two forms of the disease, either the whole length or a part of the tube is dilated, just as is the case sometimes with the heart; and in the third form there is a series like a string of beads, and the coats are exceedingly thin, as though it resulted, not from hypertrophy—for then the parts would not be thinner—but from simple distention. In cases of this description

some other symptoms arise. The disease is attended with great debility, and the patient is broken-winded.

AUSCULTATORY SIGNS.

Now you may suppose that such an alteration as this will give rise to some alteration in the sound of the chest. This is a matter rather of curiosity and of pathology than of practical importance. When small tubes are dilated, they approach nearer to the natural size of large tubes—they approach nearer, of course, to the size of the trachea; and therefore, if there be any difference in the sound of respiration, in the sound of a cough, or in the sound of the voice, in the large branches, it ought to be the same when the small tubes become large ones;—and this is actually the case. The sound which is commonly heard in respiration in a healthy chest, called “vesicular respiration,” it would be best to learn by listening to the chest of your friends. The ground-work is to be learned by listening to the healthy sounds of the chest; and when you have learned the normal sounds only is it time to learn the unnatural sounds. If you listen to different parts of the chest of a healthy individual, you hear different sounds in respiration. If you listen to the lungs, in general you hear that minute murmuring which is called vesicular respiration, by LAENNEC, the respiratory murmur; but if you listen over those parts where you know that there are large branches of the bronchiæ, you do not hear that fine murmur, but rather a rougher sound; there is not a distinct murmur, a feeble crepitation, but there is a rough passage of air—such as you may suppose will take place if air be traversing a pretty large tube. When it goes into a *vesicle*, and out again, there is a minute crepitation, scarcely to be called a crepitation, and it gives the sound of murmur; but if you listen over a large tube—the division of the trachea—you hear a rougher sound. Then, if you listen to the trachea itself, you have a still rougher sound, merely from the tube being so much larger. The respiration heard in the chest at large is called “vesicular respiration,” because it is the sound of respiration passing to and fro in the air cells. The sound in the bronchiæ is the *bronchial* respiration, and that in the trachea, the *tracheal* respiration. You will hear tracheal respiration at the anterior and lateral parts of the neck; you will hear it at the upper part of the sternum—the superior sternal region; you will also hear it at the superior portion of the infra clavicular regions, just under the clavicle; and you will hear it at the cervical portions of the acromion region, near the acromion of the scapula. In these situations you hear the sounds of respiration which the trachea gives. Then you hear the sound which the large branches of the bronchiæ give, what is called bronchial respiration, in the middle sternal region—that is to say, below the part of which I have just spoken; and you will hear it to the right and left of it. Here you will hear bronchial respiration—the sound of air traversing the large bronchiæ; and you will hear it in persons, if they be thin, between the scapulae and in the axilla.

You will hear the sound of air in passing to and fro the air cells—vesicular respiration—in every part excepting the superior and middle portions of the sternum, and to the right and left of these in the axilla, between the acromia, between the scapulæ, between the acromia and the neck, and the superior part of the chest, immediately below the clavicle.

If it so happen that certain tubes are dilated, then you will hear, instead of the respiratory murmur a sound approaching to that of the bronchiæ, and even approaching to that of the trachea. This is one of the chief signs of the bronchiæ being dilated. They may be dilated to such an extent as to sound very much like the trachea, but in general you have only bronchial respiration. If you make the patient speak, and listen to different parts of the chest, you will have very different sounds, according to the part at which you listen. If you listen to the greater part of the chest, you hear nothing particular, but if you listen at those parts where bronchial respiration is heard—that is to say, at the superior part of the sternum, immediately below the clavicle, and also between the scapulæ, you will hear the voice resound very much; you will hear it re-echo; and there is no better mode of expressing it than that. You hear a sound of considerable force, but you hear no such thing if you listen to other parts of the chest. This arises from these parts being situated over the bronchiæ. If you listen over the trachea, you have a loud sound; indeed you hear the voice rush through the tube, so that you have *brongophony*, and what is called *pectoriloquy*. You may have an idea of what is meant by pectoriloquy by passing the stethoscope over the trachea or larynx of any adult person: you find the voice come through the tube to the ear as if the voice were against the ear. The natural sound of the voice below the clavicle, at the upper part of the sternum, and between the scapulæ, is called *egophony*; and the natural sound on the larynx is called *laryngophony*.

If any of these tubes be very much dilated, if small tubes attain the size of large ones, you will have a sound just as you should over the latter in health—you have brongophony at a part where it should not exist; and if the bronchial tube be dilated enormously, nearly to the size of the trachea, so that it amounts to a cavity, you will have the voice come through the tube into the ear—you will have pectoriloquy; and pectoriloquy is neither more nor less than the same sound that you always hear if you apply the stethoscope to the larynx. It must be a very extreme dilatation however for you to hear the voice come through the tube in this way. It is common to have such a sound as you hear in the bronchiæ, but to have such a sound as you hear in the larynx is a rare thing; indeed there must be a larger dilatation than I ever met with. Such a dilatation occurs from time to time, but it is so rare that I never saw it. There are drawings of it, and there is no doubt as to the existence of the fact. There is, therefore, in dilatation, bronchial respiration and brongophony; and if the latter be very great, there is tracheal respiration and a tracheal voice. The nearer the tube is to the surface the more clear are those sounds. Chronic bronchitis, however, will sometimes

induce the very opposite state: instead of causing the tubes to become dilated, they will become thicker, and the canal be diminished, not dilated. Sometimes there is lymph effused within, so that they are completely obstructed. When lymph has been effused within, and the tube has been obliterated for the time, it has been called a *bronchial polypus*. It is nothing more than the same occurrence that takes place in croup—that is to say, lymph is effused, only not in a tabular form. I once knew a case of gonorrhœa which filled the urethra with lymph, and it was discharged in this way. Where the bronchiæ have been obstructed by lymph, it has been an instance of chronic inflammation—at any rate, not of acute. In old books you will find it said, that nobody could imagine what was the matter with the patient, and then such a mass as this has been spit up. In cases of this kind you could tell what would be the auricular symptoms. At that part there would be no respiration, and as soon as it was spit up there would be the murmur again. But without such a cause of obstruction as this, the tubes are sometimes blocked up: the cavity is obliterated by the sides becoming thickened and contracted, and then no respiration, of course, is heard at the part, and this want of respiratory murmur is permanent. In the case of acute bronchitis, it will cease from a momentary obstruction of the tube, for a few hours, but coughing removes it, and you hear it again; but when the obstruction arises from a contraction of the tubes, the want of respiration is permanent. Chronic bronchitis produces a change farther, and precisely of the nature of dilatation. The minute tubes of the bronchiæ terminate, in the air cells, and it occasionally happens that the air cells are dilated by this disease. This has been called *emphysema* of the lungs; but I think it an improper expression, because by *emphysema* we mean the presence of air in the cellular membrane, where there ought to be no air. Now in this case there is no air in the cellular membrane, no air in any place but where it ought to be; only the part which contains the air is too large—contains too much. These dilated air cells attain, in general, only the size of millet-seeds; but here and there one may be seen the size of a hemp-seed, and even as large as a cherry-stone. When they are the size of cherry-stones it is very probable that the air tubes open into the cells, and all the cells separating from the tubes, they are dilated into one common cavity. You are acquainted with the anatomy of the air tubes and air cells, and therefore are aware, that at the termination of each twig of the bronchiæ where it is as fine as a hair, the hair cells are situated all along it, just like fruit upon a stalk. I think it probable that when a bronchial twig is dilated to a great size the air cells which separate from it are dilated into one.

Occasionally, those of the greatest magnitude actually project on the surface of the lung, and are so prominent as to present a large globular form externally. Sometimes they are as large as a walnut, and even larger. There is a preparation at St. Thomas's, where there is a tumor of this description on the surface of the lung. In extreme cases of this description you will see the edge of the lung quite translucent, and standing away from the body of the lung. If

the quantity of air be very considerable, the sides of the cells may crack, and then a communication is established between them and the cellular membrane, so that true emphysema is superadded; and in that case the tumor upon the surface of the lung may attain a very great size, and the air may, by pressure, be forced about. Still it is found, notwithstanding that the cells occasionally crack and air escapes into the cellular membrane of the lung, that it does not move about very extensively—not so extensively as it does in other parts of the body.

If lungs with dilated air cells be inflated and then cut into (which I imagine is the best way of preserving them—dilate the lungs, keep them dilated, dry them, and then cut them), the dilatation of particular air cells proves to be more considerable than appeared externally. When the dilatation is considerable, and at the same time so extensive as to occupy the whole lung, instead of collapsing, you will find, on opening the chest, that it rebounds and projects beyond the chest. A lung thus affected necessarily sinks less in water than a healthy lung, and on handling it, it does not crepitate in the usual way, but it gives such a sound as would arise from the slow escape of air, and you cannot empty it as readily as you would a healthy lung. You will find that the tissue of the lung is drier than in health, and even the roots of the lungs have not the usual infiltration found in that part. The lungs more resemble those of a reptile than a man. You know what the lung of a frog is; and the human lung is reduced very much to that state. The lung of a frog has a large receptacle for air, not the minute cells that we have; and on opening it, it escapes the boundary of the chest. When only one lung is thus affected, it has been seen to become so much more bulky than the other as to push aside the mediastinum and heart (if on the left side), and produce an enlargement on the right side. LAENNEC has described this condition of the lungs far more accurately, and far more minutely, than any of his predecessors; but, as you may see from his engravings, it was well known to Dr. BAILLIE. Dr. BAILLIE speaks of an enlargement of the air cells causing the lungs to resemble those of amphibious animals. He considers it probable that two or three cells may be broken into one; and therefore, although LAENNEC has the credit of having first described it, it is right that we should give Dr. BAILLIE his due. Dr. BAILLIE also remarks that Sir JOHN FLOYER distinctly describes the disease, as seen by him in a mare; and he considers the remark as applicable to the human subject. "The bladders," says Sir JOHN FLOYER, "are either broken, and admit the air into the membranous interstices, or else they are over-distended, like a hernia in the peritoneum; and this will produce an inflation of the whole substance of the lungs, and that a continual compression of the air and blood vessels which will produce a constant asthma." He was aware of this condition, and he describes asthma as occasionally caused by this over distention.

The causes of this over distention, and the still more intense circumstance of the rupture of the coats of the air cells, may be a violent inspiration and retention of the breath, such as occurs in blowing a wind

instrument; it may be a mere debility of structure, a loss of elasticity; but the most common cause is occasioned by the want of a due expansion of the lungs. Whatever prevents any one part of the lungs from expanding when the thorax expands—whether it be a material obstruction of the bronchial ramifications, or a compression of them, or whatever else—it will occasion those parts which remain dilatable, to keep dilated in a corresponding increased degree in order to fill up the vacuum which the expansion of the chest occasions. When we inspire, we dilate the chest, and the air rushes down the trachea; and the lungs follow the dilated portions. If there be any part that will not dilate, then I presume other parts are over dilated, to fill up the vacuum; and in that way those parts which we distend are over distended, to compensate for the want of distention in other parts; and when once over distended, they are often unable to recover themselves, just as is the case in other parts of the body—the urinary bladder, for instance. I presume it is on this account that the dilatation of the air cells is so common in persons labouring under chronic bronchitis, especially where the membrane is most thickened, and where the secretion, if there be any, is tough and adherent, producing obstruction. Such, at least, is the explanation which presents itself to my mind. LAENNEC supposes that the air which passes through the imperfectly obstructed tubes in chronic bronchitis, cannot easily escape again, but there it remains imprisoned in the air cells by a mechanism somewhat similar to the mechanism of the valves of an air gun, and the succeeding inspiration introduces a fresh supply, so that the accumulation is very great. I cannot refute this explanation; but the occurrence of the facts upon which I ground my explanation is indisputable, namely, that in inspiration we dilate the chest, and the lungs follow; if one part be obstructed—cannot dilate, the other parts attempt to get more of the air, for the purpose of filling up the cavity of the thorax. Thus, when one part is obstructed, another will become dilated; and LAENNEC, to prove his opinion right, should have shown that the dilated air cells are those belonging to the tubes in which obstruction exists. That he has not done. I conceive they are not those in which there is obstruction.

The existence of this state of the lungs—morbid dilatation of the air cells—cannot be known without the use of the ear. Dr. BAILLIE, knew nothing of auscultation; but he says, with great truth, that when the air cells of the lungs are much enlarged in size, persons have been remarked to have been long subject to difficulty of breathing, more especially on motion of the body; but I believe there are no symptoms at present known by which this disease may be discriminated from some others incidental to the chest. The dyspnoea does not differ from the same symptom under other circumstances; it frequently occurs in paroxysms, and will continue for many years. But the pathognomonic signs are obtained from percussion and auscultation—not from either alone, but from the union of the two; for if, when the air cells are greatly dilated, you strike that part of the chest, a sound is heard exactly as in health, and perhaps even

clearer : from there being but little pulmonary substance there, you have a sound more hollow than even in health. This is the first thing that you must expect ; then, if you listen to respiration at the part, there is very little murmur audible. Instead of a number of minute cells, with air rustling in them, there are only two or three cells largely dilated, and therefore the air cannot rustle as before ; you hear very little of the respiratory murmur. The air which is there scarcely leaves the air cells—scarcely passes to and fro ; the part is not expanded, and the consequence is, that there is very little motion of the air. But it is to be remembered that you do hear some respiratory murmur ; and this is the distinction between the presence of air in the pleura and the presence of air in merely dilated air cells. If air exist in the pleura, there it remains ; you have a more hollow sound than usual ; but on listening, there is no respiratory murmur—the air is in a state of stagnation. In the case of dilated air cells however there is a little driven out, and a little drawn back again, and therefore there is a trifling respiratory murmur. In the one case there is none, but in the other there is some.

It is said that when this affection is extensive, there is another pathognomonic sign—the inspiration is made with a crackling sound, as if the air were entering and distending lungs which had been dried, and the cells of which had been universally dilated. The lungs are drier in this state than in health, and when the case is very severe, the inspirations are attended with a sound similar to that produced by blowing into a dry bladder ; and this has been termed by LARNEC *dry crepitous rattle, with large bubbles*. It gives you the idea of dryness, and therefore it is “dry crepitous rattle ;” and it gives you the idea of air entering a bladder, and therefore he says, “with large bubbles.” These are extreme cases. When the tubes are dilated, they approach to the size of the bronchiæ, and you must have the same sound that you hear there ; and if the air cells be dilated, it stands to reason that you cannot have the same minute murmur that you have when it is passing a thousand minute cells ; and it stands to reason also, that you will have a clear sound there, just as you have in health, because there is air there, as before ; and if the dilatation be very considerable, you will have a clearer sound than before, because there is little else there but air—little pulmonary substance.

TREATMENT.

Nothing can be done, either for tubes or air cells that have fallen into this state. With regard to the treatment of chronic bronchitis. Accordingly as the symptoms are inflammatory, and your patient strong, must your treatment approach to that for the acute disease ; and accordingly as the patient is weak, and there are signs of passive rather than of active inflammation, so must you be careful in lowering the strength. In the latter case, when there are signs of congestion rather than of inflammation, and the powers of the patient are feeble, you may very easily conceive the great importance of not taking away a drop more blood than is absolutely

necessary. Where you see the face black, the body bloated, the legs swollen, and a small quantity of urine only is formed, it may be necessary to take away a small quantity of blood, perhaps a little from the jugular vein; or you may cup the patient between the scapulæ, and on the front of the chest; but more than a few ounces can seldom be borne. Diuretics and emetics are of the greatest utility. By diuretics you unload the lungs considerably. There is always a great collection of serous fluid in the air cells and tubes, and by diuretics you produce a great alleviation to the patient. It is a good practice to combine digitalis and squills together; you may give many diuretics together, when you cannot increase any one of them. When you cannot give the patient a larger dose of squills without making him sick, you may add digitalis. The efficacy of a diuretic is generally thought to be much increased by giving a small quantity of mercury. Diuretics act more powerfully on the kidneys, if you give a small quantity of mercury with them, than if the latter be omitted.

You will always find great relief from the exhibition of emetics; and among the best is ipecacuanha. If you give antimony two or three times every day, you debilitate the patient; and this is not a case for diminishing the strength. You only want to unload the patient, but antimony is a very depressing agent, and if given every day for a fortnight or three weeks, you may produce great irritation of the mucous membrane of the stomach—gastrodynia; and therefore I think ipecacuanha is the best. Patients will bear not merely fifteen or twenty grains, but thirty; and it is a safe medicine. I am told that if you give a large quantity, it comes from the stomach, and produces no more effect than a small one. It is of great use to give an emetic every morning, or every other morning, and clear out the bronchiæ; it is an excellent remedy. When acute bronchitis has lasted any time, and you do not think proper to evacuate, emetics may be repeated more freely, especially in the case of children. When the case is not very severe, a nauseating dose of ipecacuanha, squills, and other things of that description, is very useful. Among the best expectorants are those which excite nausea. It is always, of course, necessary to attend to the bowels; if you do not, there is still more congestion; but it is very dangerous to purge briskly. In these cases the powers of the patient soon sink; and it is better to trust to emetics and diuretics.

It is frequently of very great use to blister the chest; but the employment of tartar emetic ointment is rather a severe and cruel mode; and I have not seen that it is any better than an ordinary blister. Some persons are fond of dry cupping; there is no loss of blood, and yet a great determination of it from the inner parts. It is frequently necessary to employ remedies of a soothing nature. Among the best is hyoscyamus, or conium, which may be given night and morning. There is no rule for the dose; but you find you may increase them to a much larger quantity than you begin with. I have seldom found stramonium of much use in lessening the cough; it is not to be compared with hyoscyamus, or conium, or opium. Opium is one of the best things, but in many of these cases there is a great dispo-

sition to heaviness of the head, and opium has the inconvenience of confining the bowels; so that though it is a good medicine in the form of DOVER's powders, yet it is not so good as hemlock or henbane.

You will soothe the air passages much by making a patient inhale different things. They may inhale the steam of hot water; but one of the best modes is not to let them inhale the steam, but have a vessel, and let the air they breathe come through the hot water. You cannot charge air with a dose of salts, but there are many things which may be taken up by the air, and which may be inspired in this way. I have put hyoscyamus and conium into water, and let the patients breathe through it, and with great relief. Some persons have used prussic acid, and they say that has afforded them great relief. Chlorine may be introduced this way; I have seen it lessen the irritation. some persons employ iodine; but it is right not to put more than one drop of the saturated solution of iodine. Some patients will bear three or four drops, but some will not bear more than one; and I have known some people who could not bear one drop put into three quarters of a pint of water. It is right to begin with the smallest quantity, and never increase it beyond what is borne without the least irritation. I had a patient labouring under chronic bronchitis, and who found great relief from breathing through tanner's liquid. People living in the neighbourhood of tanners' pits often find their respiration improved. Where there is no fulness of the chest, but the bronchitis resembles phthisis—where the patient wastes away, and has a tiresome cough, you will find tonics of great advantage. Where there is a disposition to dropsy, emetics and diuretics are proper; but where the patient is more or less hectic, and is spitting up a great quantity—a state which often occurs in young persons—you find tonics of great use; and you find iron one of the best. There is an interesting case in the first volume of the Medico-Chirurgical Transactions, of a young lady supposed to be in a consumption, but by means of three grains of sulphate of iron taken twice a day, she got well. I have had cases of that description without end, where persons were supposed to be on the verge of phthisis, but where there was nothing but bronchitis—no signs of tuberculation, but irritation of the membrane, producing everlasting tickling in the throat.

In those cases where there is a dilatation of the bronchiæ, or of the air cells, the treatment will not vary; you must treat the case on general principles.

DISEASES OF THE CHEST—PERIPNEUMONIA.

By far the greater number of instances that we see of inflammation of the lungs, is not inflammation either of the air cells or the cellular membrane, but inflammation of the bronchial tubes; occasionally however we have inflammation, as it would appear, of the air cells themselves. This, properly speaking, is *peripneumonia*. The term *pneumonia* is the name given to any inflammation within the chest, even to inflammation of the heart and pericardium; but the

word *peripneumonia* is more properly applied to inflammation either of the air cells, or the cellular membrane around them, whichever it may be. I have no doubt however that the inflammation is inflammation of the air cells themselves, and it is in this point of view in which I shall now speak of it. The common well-known symptoms of this disease, those which are discernible without the aid of the ear, are very much like those of bronchitis. There is pyrexia; general feverishness; rapidity of respiration; shallowness of respiration; cough and expectoration. In bronchitis, there is a sense of constriction in the front of the chest, a soreness sometimes pretty considerable in coughing; whereas in peripneumonia, if there be anything, there is rather a deep-seated dull pain, and this is sometimes confined to one spot, yet for the most part this dull uneasiness is pretty much diffused, and indeed is frequently so very slight that a diagnosis cannot be universally made from it. Then the dyspnoea, if people lie still, is by many persons scarcely complained of any more than it is in bronchitis. Some persons labouring under bronchitis will not allow that they have difficulty of breathing, neither will they in peripneumonia. Just as in bronchitis, there is frequently violent cough, but sometimes there is scarcely any; the cough is infrequent and soft. LÆNNÆC considers that the expectoration in peripneumonia is a pathognomonic distinction, and points out the nature of the disease. He says, when in this disease the sputa are received into a flat and open vessel, they might unite into so viscid and tenacious a mass that we may turn it upside down, even when full, without the sputa being detached, although they may partially hang from the vessel's mouth; but the great bulk still sticks to the vessel. Their tenacity is such that it makes them vibrate like so much jelly; and the tenacity prevents the air bubbles, which are in great numbers in this kind of sputa, and sometimes very large, from breaking. The air does not escape, but forms bubbles, and be they small or large, for the most part they remain. I think all will allow that we must look beyond the sputa, as well as beyond the general symptoms, for an accurate diagnosis of this disease; for LÆNNÆC allows that the sputa are frequently not so viscid as all this; he allows that frequently they are of some shade of red or green, though for the most part they are but little coloured; and he allows that frequently they are almost destitute of air bubbles, frequently a mass of mere mucous or pituitous secretion, and a few glutinous, with slightly tawny portions. Indeed, when the characteristic sputa do occur, as they continually do, it is very often only at the onset of the disease, only for a few hours, and even then sometimes only in so small a quantity as scarcely to admit of being collected.

The pathognomonic signs of this disease are acquirable by the ear only; but before considering them it will be necessary to trace the appearances after death in that region, and the succession of the changes. This is an opposite course to what we usually adopt: generally we speak of *post mortem* appearances when the symptoms are done with, but here it is necessary to

reverse the order, for the symptoms are in accordance with the unnatural changes. In the first stage of inflammation of the air cells, the lung merely suffers an accumulation of blood, so that it becomes more solid and heavier than usual; it looks livid externally, and retains the impression of the fingers, like an cedematous limb. On cutting into it, it is found to be of a deep blood colour, and replete with frothy, bloody fluid; but still the lung is spongy, still it crackles under the fingers. This is a stage in which after death you will find nothing but an accumulation of blood and serum. As the lung crackles after death, as it contains air to the very last, you will expect to hear in these particular parts during life the murmur of respiration, and that is the case; and as air is admitted, you will expect to hear on percussion the usual hollow sound on the chest, and that likewise is the case. But the murmur which you hear when the inflammation has only reached the first stage in that particular part, is accompanied even from the very first moment of the attack with a crackling sound. You have not the ordinary murmur of respiration, but it takes place with a *crepitous rattle*, or, a crepitous respiration. It gives you the idea of numerous minute and almost dry bubbles, and you hear this dry crackling the more decidedly the nearer the inflammatory spot seems to be to the surface; and those who have employed their ears frequently, can from practice tell the exact depth of the inflammation, from the loudness of the crackling. The nearer the disease is to the surface the louder it is heard. When the inflammation has become more intense, the lungs are heavy, and they become so firm as to resemble liver, and on this account the term *hepatization* has been applied to this state; but really, I must say, very absurdly. The lungs are not changed into liver; if they were, it would be hepatization; but if they only remain as solid as liver, something like liver, it is an improper word. By ossification, we mean an absolute conversion to bone, and by hepatization we ought to mean a conversion into liver. Hepatization merely means that the lungs have become as solid as liver; and ANDRAL proposes another term, *solidification*, which I think better. In this state, where the lung has become so solidified, it will not crackle under the finger—it has evidently become impervious to the air. If you cut it, squeeze it, and scrape it, very little fluid escapes from it, and what does escape is not frothy, neither is it so thin as that which escapes in the first stage. I presume that in these cases there is more or less fibrine effused or deposited, and that is the explanation of the solidity, the want of air, and the want of frothy fluid. On striking that part of the chest where the lung has become so solid, you of course cannot have a hollow sound. There is no air there, as usual, no room for it, but a solid mass, and on striking over it you have the same dead sound as if you struck over the liver. On listening to the part, as it contains no air, you of course cannot have the respiratory murmur, and having no murmur there is no respiration—you cannot hear crepitous

rattle. In the first instance you have crepitous rattle, because there is a thin fluid in the air cells; but here there is no thin fluid in the cells—they are all solidified, and therefore there is no crepitous respiration. If, however, the part happen to be situated near a large bronchial tube, you will hear the patient's voice there, on account of solids being better conductors of sound than æriform bodies.

Before death, however, a still further change will take place. Inflammation of the lungs tends to suppuration, and at an advanced period a third stage occurs; but there is this peculiarity in suppuration of the lungs—the pus is diffused, and not collected into an abscess. After the second stage, when the third begins, the lung is as hard as before, but it becomes yellowish, or of a straw colour. When the pus is first formed in a small quantity, there is quite sufficient to change the colour of the lung; but after a little time the pus becomes more abundant, the lung becomes soft, and will yield to the point of the finger.

In this stage, just as in the second, there is no hollow sound on striking the chest, neither is there any respiratory murmur, but a loud mucous rattle—that rattle which you may have an idea of, by recollecting the sound occasioned by air passing through soap-suds. The mucous rattle is heard in the bronchiæ, either from some of the pus going into them, or a secretion from their own membranes.

Should an abscess be formed, should the pus be collected into a mass, a characteristic symptom will be heard. I do not recollect above twice seeing an abscess in the lungs, great or small, resulting from inflammation, and when I did see them they were small and full, and just as likely to be the result of a few distinct tubercles, which had existed in the lungs previously to the inflammation, as of inflammation itself. Some persons will have an odd tubercle or two formed in the lungs, without inflammation—that we see continually—and these may suppurate, and an abscess be formed, and if the lung fall into a state of inflammation, the solitary abscess may be ascribed to inflammation. It rarely is the result of common inflammation of the lung. When abscesses do occur in the lung, LAENNEC is right in asserting that they are almost always occasioned by the softening of tubercular deposition, the softening of scrofulous deposit. Among several hundred dissections of peripneumonic subjects, says LAENNEC, I have not met with a collection of pus in an inflamed lung more than five or six times. These were not of large extent, nor numerous in the same lung. BROUSSAIS, to whom LAENNEC was in many points indebted, declares that he never saw ulceration in the lungs, without tubercles, more than once, and then the inflammation resulted from a musket-ball, which was tantamount to a tubercle. The reason assigned by LAENNEC for the circumstance is, that the disease is cured by art, or destroys life before it proceeds to the length of destroying the pulmonary tissue; that death takes place before the disease advances so far as for matter to be formed in the lung in an abscess. This disease is frequently

fatal when it is not of great extent, when it has not passed the first of the three stages to which I have alluded. The first and the second of these stages are frequently seen in different parts of the same lung, and you may even see the third stage. You observe one stage going into another.

It is very remarkable that in the greater number of instances, the inflammation commences at the lower part of the organ, and it may not extend higher; and when the disease has advanced, it is consequently in the lower part that the second or third stage is generally found, while higher up the disease may only be in the first stage, or be entirely absent. The right lung, it has been asserted, is more frequently affected than the left: of that I cannot speak, but I can speak to the fact of inflammation, in an infinitely greater number of instances, beginning at the lower part of the organ than higher up. There can be no doubt that the membranes of the air cells, and not the surrounding cellular tissue, is the seat of the disease. In the second stage of the disease, when the lung is solidified, but still red, if the structure be cut or torn, instead of the natural appearance of the cells, the inflamed part has minute granules, round or oval, corresponding exactly with the appearance which the air cells would give if filled with a tenacious fluid, and solidified.

LOUIS, an eminent pathologist, found that, by forcing fluid into the bronchiæ, the same granular appearance might be produced by art, and therefore this granular appearance clearly arises from the air cells being filled with the same tenacious fluid. The crepitous or crackling rattle also shows, I think, the same thing, for it is heard in another affection, in which this thick fluid evidently exists in the air cells. In hæmoptysis, when bleeding takes place in the air cells, the same sound is heard as in peripneumonia. Now in hæmoptysis this must arise from little bubbles snapping and cracking through this fluid, and as the same sound precisely is heard in peripneumonia, I think it is a strong argument to prove that the air cells are affected by the disease, more especially when we see that a certain peculiar fluid is spit up in the affection.

Those rare cases of inflammation of the lungs which end in the existence of abscess, are marked by the same auscultatory phenomena as occur when there is a phthisical excavation. You hear the sound come through the tube; and when the patient breathes there is the sound of a cavity, and there is a metallic tinkling—a noise as if a bell were struck with the point of a pin.

If, by art, the disease be remedied—if the inflammation yield—of course the lung goes through the same stages as before, but inversely—the third stage comes to the second, and the second to the first; and it is found that the signs, audibly noticed by the ear, go through the very same inverted course: the auscultatory phenomena heard in the second stage disappear, and those which occurred in the first stage are heard again. Nothing is more interesting, certainly, than to trace the reversed order of the changes here. Suppose the disease has only gone into the first stage, you hear the hollow

sound on striking as in health, and, on listening, you hear crepitous rattle, and even crackling. You cure the patient; and, as he is being cured, the crepitous rattle declines—it becomes fainter and fainter every day—and instead of that you have the natural murmur of respiration more and more distinct. Suppose the second stage has been reached, and you are successful; in that case the want of a hollow sound, on striking the chest, gives way, and you hear by degrees a little hollowness of sound—and you hear it more and more every day, till that side of the chest sounds as hollow as the other. The respiration had ceased, from the lungs having become solid; but you hear a little crepitous rattle increasing every day till you hear it as distinct as in the first stage; and then, having arrived at the first stage, the disease passes through that entirely; you hear the crepitous rattle decline, and you have the natural respiratory murmur becoming more and more distinct. In the third stage, you still have no hollow sound, but you have a mucous rattle, generally from the entrance of pus into the bronchial tubes. This declines by degrees, if the patient get better, and then you gradually hear a crepitous rattle, from the cells losing a part of their viscid contents, so that they again admit a portion of air. The chest then regains its hollow sound on striking, and, at last the crepitous rattle declines.

Anatomical examination shows the changes of the part to be precisely correspondent with the auscultatory phenomena. When the first stage is recovered from, the lung is found to grow less red, less turgid. Supposing the patient dies from intense inflammation of one part of the lungs, there is a lower degree in another part, and you find that is only in the first stage; but you are still able to make your observations there. You find perhaps that you have cured the inflammation at that one spot—that respiration is heard there more and more, while in another part it is heard less and less; but the patient dies, and, by examining different parts of the lungs after death, and having listened to them through life, you are able to trace the changes. When the inflammation of the third stage is being recovered from, the lung becomes less turbid; and when the second stage is being recovered from, back to the first, the colour also becomes less intense; the texture becomes softer; the weight decreases; the organ, on comparison, affords more fluid; the fluid becomes more and more of a frothy character; and the granular appearance declines. In the second stage, there is a considerable granular appearance; now this granular appearance declines, and the vesicular character of the lung returns. When the third stage is recovered from, the yellow colour becomes lighter and lighter; the pus becomes more aqueous, less thick, and at length it becomes frothy, and the accumulations of pus are reduced to mere specks; the vesicular appearance returns; the lung crepitates, and at length grows natural; and the little serous infiltration that there was is absorbed. Notwithstanding cases of peripneumonia are every day recognized, and the amendment or exasperation of the disease is ascertained by practitioners who never

employ their ears. Many cases of inflammation of the lungs have been overlooked in the midst of other diseases, or have been totally mistaken. Some perpetually mistake diseases of the lungs for diseases of the heart, and diseases of the heart for diseases of the lungs; and in the affection before us, peripneumonia, if it suddenly supervene during a chronic affection of the chest, they continually ascribe the symptoms to effusion, to pleuritis, to dropsy of the chest coming on, or something else, having no idea whatever of the real disease. In phthisis, an aggravation of the dyspnoea, unattended by pain, is very common, and is ascribed to an effusion into the chest, or the bronchiæ, or the substance of the lungs; and in chronic bronchitis it is ascribed to an attack of spasmodic asthma; when the simple trouble of listening to the lungs would show crepitous rattle, and that the difficulty of breathing arose from the presence of peripneumonia. In various fevers, eruptive and simple, in simple dyspnoea, without pain, during an attack of rheumatism and of gout, peripneumonia is continually overlooked; and some surgeons have stated, that after severe wounds and operations, peripneumonia will occur in the most insidious manner, and not be discovered till all possibility of remedy is over. Surgeons have lost patients under operations after having suffered severe accidents, without knowing why; and after death they have discovered that the lungs have been inflamed. All this mischief will be prevented by examining the chest with the ear, in every instance of dyspnoea whatever—where there are no pectoral symptoms at all—no signs of any morbid affection of the chest—but where pectoral complaints are likely to supervene.

I did not speak of the causes of bronchitis, because in both diseases they are the same. Cold is a common cause; vicissitudes of temperature; cold and heat, applied in the way which I mentioned when speaking of inflammation. Both bronchitis and peripneumonia supervene on other affections of the chest. It is common, in diseases of the heart, for persons to be seized with one or the other, either in an acute or chronic form. Nothing is more common than to see bronchitis and peripneumonia united with diseases of the heart and pericardium; and so nothing is more common in diseases of the lungs, than to see these affections. In phthisis we have bronchitis, acute and chronic, and peripneumonia; and so in every other disease of the chest. Inflammation is frequently idiopathic, arises from a common cause; but sometimes it is symptomatic—is the mere result of another disease in the neighbourhood.

TREATMENT.

It is only the treatment of any inflammation. Patients have sometimes borne the loss of an immense quantity of blood; perhaps more in this disease than in most others. It is in this affection that those enormous bleedings are reported to have taken place which I mentioned when speaking of inflammation in general—a few gallons in the course of a few days. Mercury is of the same use in this affection as in bronchitis, and in bronchitis as in other inflammatory diseases.

DISEASES OF THE CHEST.

You might suppose that if the lungs ever became gangrenous, it would be the result of inflammation, as gangrene so frequently is in other parts of the body; but I believe that the severest inflammation of the lungs seldom, if ever, induces mortification. Sometimes it may be the case, but it is rare. The lungs will fall into a gangrenous state, and there is more or less inflammation attending it; but the gangrene does not appear to be the result of the inflammation; on the contrary, indeed, when nature makes an attempt to get rid of a gangrenous spot, inflammation is induced all around, in order to discharge it—so that the inflammation is sometimes the result of gangrene. I have only seen a few cases of this disease, which were of a different kind, and completely illustrated what LAENNEC has advanced on the subject. In one of these cases the gangrenous part was uncircumscribed. A large part of the lung was of an unnatural colour—dark greenish, moist, and soft, and in some spots it was a mere putrid pulp, little more than so much mud, and of an insupportable odour. In those parts of the lung which I saw, that were not in a gangrenous state, the organ was firm, of a chocolate colour, or a deep green. These appeared to be the three stages of the complaint. There was one part a chocolate colour, or deep green, indeed quite firm; another part was moist and soft, and of a dark green; and the third part formed a perfectly putrid, soft, muddy mass. A large portion of each lung was in this condition—in one of the three stages of this affection. In another case that I had, the gangrene was in more circumscribed patches or spots. There were patches of the lung, black, soft, moist, and offensive in the worst spots; and in other parts, where the lung was still firm, it was of a green hue. No attempt, in this latter case of mine, had been made by nature to effect separation; but LAENNEC mentions, that a gangrenous piece sometimes detaches itself, or is detached from the surrounding parts, just like a slough from caustic. That is an apt illustration of the appearance; because although the patches in my case were not separated, yet, if they had been, such would have been the state. The gangrenous part becomes dry and shrivelled, just like a spot to which caustic has been applied, or it degenerates into a putrid paste like mud. The surrounding structure is inflamed, as in other parts of the body when nature attempts a separation. You know that when a dead part is separated from the living by inflammation, that inflammation ends in ulceration, so that the dead part is left without any connexion with the living. The living part disconnects itself; the dead part becomes isolated, and is afterwards separated. If nature succeed, as she does sometimes, a cavity is often found where the gangrene existed, and the cavity has a lining membrane. Sometimes no cavity is left, but a cicatrix is formed, and the whole appears to have grown up together. In some instances the separated portion makes its way into the pleura, and pleuritis is induced; and pleurisy, with its effusion, and pneumothorax are the consequences.

In my cases, the disease was marked by a sudden prostration of strength, and a cadaverous alteration of the face; great feebleness of pulse; and an intolerable fœtor of the breath and sputa. One of these cases occurred in a man who had long suffered from a loud hollow cough, with a copious frothy expectoration; another occurred in a woman who laboured under an encysted tumor of the pancreas. In her case a slight cough came on, and at last symptoms of gangrene appeared. These general signs will point out the disease, I imagine, much more than auscultation; but it is evident, that the gangrenous part must have less respiratory murmur than natural; the part around will afford crepitous rattle, and the cavity will give rise to pectoriloquy. If inflammation be set up for the removal of the slough, causing the bronchial tubes to be affected, there will be a metallic tinkling; but I imagine that far better evidence than this will be derived from the aspect of the patient; from the cadaverous look, and the great debility, together with the intolerable stench both of the breath and sputa. When a part has become gangrenous, there is no hollow sound on striking, and no respiratory murmur; but that may arise from many things, and if there be any inflammation around the dead part set up to cause its separation, there will be a crepitous rattle, but no one could tell that this resulted from gangrene rather than from anything else. There are, however, certain signs observable by the other senses, which alone would make you believe there was gangrene; and those, together with the stethoscopic signs, make the thing pretty certain. The sputa, sometimes in this disease, are at first white and opaque; but they grow sanious, purulent, brown, and greenish, and they are from the first nearly as fetid as when the fœtor becomes gangrenous. We all know the fœtor of a gangrenous part; and before the sputa have that peculiar fœtor, they are nevertheless fetid enough: but this cannot be much depended upon, nor can the fœtor of the breath. I have seen other diseases attended with extreme fœtor, but without gangrene; and I have seen extreme fœtor of the breath and sputa without any danger whatever. Sometimes, in bronchitis, the fœtor both of the breath and sputa will be extreme. Occasionally the matter formed in phthisis is of such a quality that the fœtor is much like that of the fæces. There is no danger *necessarily* from the extreme fœtor of the sputa, neither is there necessarily gangrene; but if, conjoined with this, you observe they are bloody, brownish, greenish, something like the discharge from a sloughing part—when you observe anything like little green fragments of lymph with it, a weak pulse, an elongated countenance, and a cadaverous aspect, and the patient in the state in which you see people when they are sinking from mortification in any part, then there can be no doubt of the nature of the disease. But the mere putrid smell of the breath, and of the sputa, certainly ought not to make you conclude that the patient must have gangrene of the lung, or, indeed, be in any danger. In the cases which I had under my care, the persons became in a few days very much emaciated; the pulse suddenly fell; the temperature declined; and the countenance expressed the most extreme exhaustion; but at the same

time I had no idea in either case of gangrene in the lungs, and was much struck after death with the appearance, and then I could compare it with the symptoms I observed during life. One patient had merely chronic bronchitis for a long time, which appeared sufficient to kill him; and the other was dying of disease of the abdomen, and complained of a trifling cough, which had not attracted my attention. They were hospital patients; and it was only when opening them that I discovered the disease. When gangrene does exist in the lungs it is not necessarily fatal. There have been cases clearly of gangrene of the lungs which have been recovered from, when all these symptoms occurred. Nature is sometimes sufficient, when supported by good nourishment, to get an individual through an affection of this description, and to cause a separation of the gangrenous part.

You must support the strength of the patient as in other cases, where there is an absence of inflammation, and the presence of extreme debility.

There is another disease of the substance of the lungs, and of the membrane of the air cells, which after death presents very much the appearance of inflammation, and was frequently, no doubt, before the time of LAENNEC, mistaken for inflammation. This disease is the effusion of blood into the air cells, and I shall now therefore speak of hæmorrhage from the air passages, which will be in conformity with the plan I have hitherto pursued; viz. that of speaking first of inflammation, and then of certain other affections, among which is hæmorrhage from the air passages.

It may proceed from the mucous membrane of the air passages, or from the air cells. In the one instance, it is not necessarily a dangerous disease; in the other it is highly dangerous, in as far as it is likely to be very profuse: but the greater number of cases of hæmorrhage from the air passages arise simply from an effusion of blood from the mucous membrane of the bronchial tubes. The blood which is spit up is florid, generally of a bright scarlet colour, and frothy. It is spit up with a tickling in the throat, the pulse is quick, and there is heat in the chest. This is the description of hæmorrhage which takes place most frequently in young adults, between the age of puberty and the full adult period of five-and-thirty. It occurs particularly in that period during which the chest expands. The first part of life is disposed to hæmorrhage from the nostrils; the second to hæmorrhage from the lungs; and the third to hæmorrhage from the abdomen.

The disease, in general, is easily made out; the only difficulty is to distinguish between it and hæmorrhage from the stomach; but the latter is usually marked by a discharge of black blood—the blood is either discharged from the veins of the stomach, or it lies in the stomach so long after its escape from the vessels that it acquires a venous hue. From the one circumstance or from the other, blood, when discharged upwards from the stomach, is generally black, and has generally lain there long enough to be coagulated; it is in clots, larger or smaller. It frequently too appears in the fæces; it passes

through the pylorus. Besides that, it frequently comes up with the food—with the contents of the stomach; and, when it does not, still it comes up with sickness and nausea, if not with downright vomiting. People will have a discharge from the stomach without vomiting. Sometimes a quantity of fluid comes to the mouth, and even portions of food come up without vomiting; and so it is with this blood. There is frequently a great uneasiness about the præcordia, and a fulness about the liver and stomach. These symptoms are all absent in hæmorrhage from the lungs. The blood too is florid; and, instead of being mixed with food, it is frothy, and is necessarily mixed with air, in consequence of the parts from which it comes. These parts will not allow it to stay so long as the stomach, and it generally comes up as soon as it is poured into the passages, and therefore seldom comes up coagulated. Occasionally however you see a little coagulum; it will lie sometimes sufficiently long to become solid and black before it comes up. Then, in addition to this, you have pectoral symptoms. In the stead of nausea and vomiting, you have stitch in the side, a little cough, and a tickling in the throat. This species of hæmorrhage occurs more particularly in those persons disposed to consumption, with a fine soft skin, soft hair, and of a sanguineous temperament; and, among these, it occurs more particularly in those who have a florid colour. The disease sometimes occurs in those who have evident signs of inflammation; sometimes it occurs where there is hardly anything at all to be perceived; and sometimes it occurs in those in whom there appears to be great strength of system.

It is produced by all the causes of inflammation. A blow on the chest, or catching cold, will give rise to it; but it very often takes place without any exciting cause. Occasionally, violent exercise, and excitement of mind or body in any way, will produce it; but sometimes it occurs without any apparent cause. It will return at certain periods, at intervals of a month or a twelvemonth, and at last it will cease altogether, and the patient will then become the subject of consumption. It is very common for consumption to take place in patients who have had several attacks of spitting of blood; but this is not a necessary occurrence. I know many persons who spat blood fifteen or twenty years ago, and they are now well. If a person spit blood, he should avoid everything which causes an irritation of the chest. If you listen to the chest when the blood is in the air-passages, you will hear sibilous and sonorous rattle.

When these patients die, and you examine them, you find nothing at all. If you examine a person who has died of phthisis, and who spat blood before there were marks of phthisis, there is nothing to account for the hæmorrhage. It is a mere effusion from the mucous membrane, which will pour out blood without a rupture of the large vessels, and even small ones will throw out a gush of blood. You will open persons who have died of hæmorrhage from the stomach and intestines without being able to find a vessel ruptured; it was clearly an effusion from a thousand minute orifices. Sometimes hæmorrhage from the lungs is not of this description—does not take

place from the mucous membrane; it is a particular disease occurring in the air-cells; and in that case the hæmorrhage is generally very profuse, far more profuse than in other cases.

On examining patients after death, (for they frequently die of it,) you find certain parts of the lung become exceedingly hard, and if they be near the surface, you see the lung through the pleura very dark. The lung looks variegated, and there are large black patches here and there. If they be deep in the substance of the lung you cannot discover the extent, but on taking hold of the lung, you feel hard patches, some as large as nuts, some as large as walnuts; and, on cutting into them, you find they are exceedingly red, of a deep colour, and no doubt formerly they have been mistaken for so many large circumscribed inflammations. These parts of the lung may be from one to four cubic inches in extent, and even much larger than that, and the redness is a deep damask hue; nay, it is sometimes so intense as to be black. This portion of the lung is, of course, not only hard but heavy, and it will not crackle under the finger. On cutting a portion of the lung in this condition, you observe the same granular appearance which I stated took place in inflammation of the substance of the lungs. In inflammation of the air cells, before the part is completely solidified it has a granular appearance, which no doubt arises from blood being effused into the air cells, and there coagulating. The blood coagulates in each air cell; the minute coagulum of each cell becomes a little grain, and furnishes this granular appearance. The parts are usually perfectly circumscribed, so that the surrounding portion of the lung is in every respect healthy. In inflammation of the substance of the lung, the diseased appearance is gradually lost in the healthy lung; but in this disease, in almost every instance, the affection is entirely circumscribed, so that within a hair's breadth of it, I might almost say, the lung is perfectly healthy. The case is really one of severe ecchymosis, only that the blood is not effused into the cellular membrane as in ecchymosis of the surface of the body, but is effused into the air cells. That the blood is effused into the air cells, and not into the cellular membrane, is proved from the circumstance that the blood is spit up. If the blood were not in the air cells, but in the cellular membrane, it could not be spit up.

The great symptom of this affection during life is hæmorrhage—*hæmoptysis*, as the disease is called, spitting of blood; and that necessarily shows that the blood has escaped into the air cells themselves. Besides the symptoms of repeated and copious hæmorrhage, there is cough; difficulty of breathing; heat in the front of the chest; flushing in the face, and at length great paleness of it; and a tickling sensation in the bronchiæ, just as when hæmorrhage comes from the other source. You cannot tell whether the blood comes from the mucous membrane or the air cells by any of the general symptoms, except that when it is effused in a very large quantity, there is a probability that it comes from the air cells. It is said that as much as ten pints of blood have been discharged from the lungs in this way

in forty-eight hours; and LAENNEC says that he has seen thirty pints thus spit up in fifteen days.

The disease may exist in so slight a manner that no hæmorrhage takes place. I have known this state occur without hæmorrhage. The blood has been effused into the air cells, and coagulated there, and produced these bumps; and not having been followed by subsequent attacks, none has been expectorated; and old persons have died from other diseases, who were not known to spit up blood at all, but in whom this appearance was found.

From the appearance, LAENNEC has termed this disease *pulmonary apoplexy*. As this lesion evidently results from sanguineous exhalation into the air cells, and perfectly resembles the cerebral sanguineous exhalations which produce apoplexy. I think you will agree with me that this is an exceedingly absurd name. So far as there is a great local congestion of blood and effusion, the phenomena are the same as are observed occasionally in apoplexy. But apoplexy is not a state of the parts; it is a loss of sense and motion, occurring, for the most part, suddenly: apoplexy is a stroke that causes persons to fall down senseless and motionless. In the words of Cullen, "*Motus voluntarii fere omnes imminuti, cum sopore, plus minus profundo, superstite motu cordis et arteriarum.*" That is what we mean by apoplexy. The morbid state of the brain is not apoplexy, but the symptoms which we observe; and those symptoms will take place from the depression of a portion of bone, or from an effusion of water. Anything which compresses the brain will produce, not congestion of blood, but a loss of sense and motion. Nothing of this kind, however, occurs here. There is no loss of sense or motion in this disease, and therefore it cannot be apoplexy. But merely because apoplectic symptoms arise from a congestion of blood or hæmorrhage into the brain, LAENNEC has thought proper to call this state of the lung "apoplexy." Apoplexy will frequently arise from a secretion of pus pressing upon the brain, or a secretion of mere serum, without any congestion, without any fulness of the vessels; as in the case of a part becoming ossified, so that it splits across, and allows the blood to escape into the brain. Thus you may have hæmorrhage without apoplexy and you may have apoplexy without congestion—without any hæmorrhage.

This disease has not been known a long period. Dr. FORBES mentions, that "in 1816, M. LÉVILLÉ appears to have read a memoir on this subject before the Academy of Sciences, at Paris; and, in 1817, Dr. HOHNBAUM, of Hildburghausen, published three cases of sudden and fatal effusion into the substance of the lungs." He says, the lungs were found distended with dark-coloured blood, partly coagulated and partly fluid, and were almost too large for the chest. In one case the same kind of blood was found in the bronchiæ, and in the other in the pleuræ. The cases appeared to be nothing more than a laceration of the blood-vessels; and the patients appeared to die between the effects of internal hæmorrhage and oppression of the lungs, induced by the effusion of blood—to die of syncope and asphyxia. Dr. FORBES described such a case formerly

in his translation of AVENBRUGGER. From the suddenness with which it occurred, and it appearing to arise from a laceration of the vessels of the lung, producing congestion, Dr. HOHNBAUM gave the name of pulmonary apoplexy to this particular case. But we must consider that neither sudden death nor effusion constitute apoplexy. In apoplexy the motion of the heart may continue, but volition has ceased partially or entirely in the brain. The disease was really not understood fully till LAENNEC wrote upon it; and he then pointed out the common connexion of this particular state of the parts, with profuse hæmoptysis. Yet it is singular, that I published an account of this affection and gave the appearances after death, and the symptoms during life, some two or three years before LAENNEC. I had a patient die of profuse hæmoptysis, which I could not stop. I stopped it for a time, but it came on again and again, and he sank. I examined him after death, and I found the appearances just described. I found on the surface of the lungs numerous hard, circumscribed, dark patches; and, on cutting into them, I found hard solid lumps, of a deep chocolate colour, there being many of them in the lungs. I cut them into slices, and found they admitted the light through them, just as a clot of blood will do if cut very fine.

A person not of the profession would have supposed them so many mortifications. Blood, however, when accumulated in the small vessels, often causes a counterfeit appearance of mortification in the stomach and intestines, and in many other parts. On cutting perpendicularly through them, the hardness and dark colour were found extending inwardly an inch or less, equally circumscribed as on the surface. The intervening spaces were perfectly healthy. This LAENNEC also remarked. Nearly the whole of the inferior lobe of the right side had undergone the same change as the circumscribed portions in the other lobes. This change consisted in a prodigious congestion of blood, which gave the dark colour and hardness, but which could not be squeezed out at all. The slices were quite diaphanous, and of a beautiful red. No other change, no disorganization was in any part discernible. It seemed as if the most minute vessels in various parts had become dilated, as in *nævi materni*, and thus allowed the escape of the blood. Had the symptoms been those of acute inflammation, and the blackness not been in detached portions, there would have been nothing singular; and had the disease been simply chronic inflammation, which a frequent pain at the anterior and lower part of the chest, always yielding to blisters, and a large quantity of bloody fluid in the cavities of both pleuræ after death, argues, yet it is surprising that this should occur in patches, and should have induced no suppuration, no disorganization, but merely hæmoptysis and pain.

The employment of the ear, in addition to the general symptoms, may be useful in this disease. It is always desirable, when a person spits blood, to know how much disease exists in the lungs, and it is desirable to know whether the blood comes from the bronchial membrane, or is the consequence of such a state as this, because the latter form of hæmoptysis is far less manageable than the former. In this

kind of hæmoptysis, called pulmonary apoplexy, when only a little effusion has taken place, you have a crepitous rattle, but in hæmoptysis from the air tubes you have not, and for this reason—because it is not in the air cells. When it is in the tubes it comes further off from the air cells, and therefore you have no crepitous rattle; for that always arises from an accumulation in the air cells of some kind or other. But in effusion in the air cells you have crepitous rattle at first, simply because it is in the air cells. In those cases, however, where the blood is more abundantly effused, you cannot have crepitous rattle, because no air can be admitted. The crepitous rattle I have no doubt, arises from the air passing through the fluid, and the air bubbles bursting one after the other. When so much blood is effused into the different air cells that no air can be admitted into them, and the part becomes firm, there is no crepitous rattle, nor any rattle, at all; no respiratory murmur, and no morbid respiration is heard, for no respiration can take place long in that part. All that you can detect by the ear is, that the part is not healthy. On striking over the part you find it sound dead, and on listening you find no sound of respiration, and you learn very well by the ear what is the extent of the mischief. In my case, the whole of the inferior lobe of one lung had undergone that change; had become quite solid. In those days the stethoscope was not invented. I was taught never to use the ear, and therefore I knew nothing of the symptoms that would have presented themselves if I had employed that organ; but if I had employed the ear in this case, no respiration would have been heard over a great part of the chest, and on striking there would have been no hollow sound, and therefore I should have known the extent of the mischief. You may learn accurately the extent of the mischief in this disease; you may learn how much of the lung is solidified, by the extent of a dead instead of a hollow sound on percussion, and the extent to which there is no respiratory murmur. In regard to the treatment, that must be the same whether the blood come from one part or another, and therefore it must be for the sake of the prognosis that you employ the ear, and make a distinction between the two cases; the one being a manageable kind of affection, and the other extremely unmanageable.

TREATMENT.

In hæmorrhage from the lungs, on the immediate occurrence of it, it is right to treat it as inflammation—to bleed in the arm freely, to set the patient upright, and keep him so, in order to make him feel as faint as possible. You should keep him in that position, instead of allowing him to lie down. It is safe to apply ice to the front of the chest, and this I think should always be done; there can be no impropriety in it. As soon as you have bled, until ice can be procured, you should throw cold water on the chest, and endeavour to produce a contraction of the end of the vessels, the same as you would in the case of the womb. But generally the bleeding soon stops; a patient seldom dies of hæmoptysis at the time. Bleeding

at the arm, throwing open the windows and doors, and taking the clothes off the chest, answer very well. The patient should not be allowed to move; he should be easy and comfortable, but not allowed to move—not allowed to speak. I have often made persons persevere for a fortnight together after dangerous hæmorrhages, making them write for whatever was wanted. It is proper to starve the patient, to give him nothing but plain water, milk and water, or lemonade. It is surprising how patients in this disease bear cold. I know not a single instance of a person suffering inflammation of the chest from all this exposure, notwithstanding he would, in all probability, under other circumstances, have suffered severely.

The best internal medicine by far is the superacetate of lead, and this must often be given in considerable quantities before it will stop the hæmorrhage. I myself within a month have had three cases of hæmoptysis, in which I have been obliged to give as much as three grains every four hours before I could fully stop it. It is always safe to begin with one or two grains every six hours, but if the hæmorrhage does not stop, but returns every day, it would be right to give such a quantity as this every four hours, and if that do not stop it, you may give three grains every three or four hours with perfect safety. In all these cases there has been as much as three grains taken every three or four hours, and no inconvenience felt except constipation, which was remedied every day by some laxative. If you do not attend to the state of the bowels, and procure a motion every day, the patient may become the subject of colic; but if you administer croton oil, or castor oil, or some purgative that has no sulphuric acid, there will seldom be any colic or pain of the bowels, which is very troublesome. Some persons give opium, to prevent griping, but I have not done so, because I have not found a necessity for it. Some persons give the lead in a liquid, and some in a solid form; but I have not exhibited it liquid, because it is very nauseous, and it answers just as well solid. It mixes up with the extract of colocynth into pills very well and I have seen the stomach bear it much better if given in a pill, instead of the fluid form. That is the case with all acrid and nauseous things—the stomach can bear a pill the best. If the patient's stomach be disposed to reject it, it is useful to give one or two minims of hydrocyanic acid three or four times a day. If you are giving the lead only three times a day, then you might give hydrocyanic acid three or four times; but if you are giving the lead every four hours, then you cannot give the prussic acid so frequently. You will find the dose required to prevent the vomiting exceedingly various: in some, it will be prevented by one minim, three or four times a day, taken before the lead; and in other cases, two, three, or four minims, will be required. But of all medicines to prevent others from irritating the stomach, I know of none equal to hydrocyanic acid. Some apply blisters over the chest, and they are very useful in these cases at last, but the application of cold by means of ice is better. Treat it as an active inflammation in the first instance, and when the hæmorrhage is very considerable, treat it as a passive inflammation, or rather as active and passive;

combine the two modes of treatment. Do all you can to prevent an excitement of the pulse, by bleeding from time to time, and keeping down the circulation, and at the same time adopt the treatment of passive inflammation, by producing a constriction of the vessels.

DISEASES OF THE CHEST—ASTHMA.

ASTHMA is often connected with bronchitis and whooping cough, and very often with inflammatory diseases, but not necessarily so. Both asthma and whooping cough are frequently unconnected with inflammation, nor is there any appearance after death that will explain the symptoms; they are frequently specific and functional diseases. By asthma is meant a spasmodic difficulty of breathing, situated lower down than the larynx and trachea—a spasmodic affection of the organs of respiration, below the larynx and trachea. It is frequently united with organic diseases, and with inflammatory states, frequently merely the result of irritation; so that you may have it without any organic disease, or any inflammation at all. In a case of pure genuine asthma, you have a violent sense of constriction of the chest, with a loud wheezing respiration, heard without putting your ear to the chest, or employing a stethoscope. Such an attack as this is soon accompanied by a short and difficult cough; but as the sense of constriction goes off, the cough becomes freer and deeper, and there is some expectoration. During such an attack as this, the face is pale, elongated, and pinched; the nose and extremities become cold; the pulse is found to be small and quick, and frequently I have observed it to be irregular. The skin throughout the body becomes rough, from the retrocession of blood from it; horripilation takes place; the patient looks as if he were dying; he is gasping for breath, cold, and pale, and in such an agony from the want of breath, that you would think him dying; yet in the greater number of cases there is no danger whatever. Such an attack as this may last only a few minutes, or it may last several hours. It generally takes place in the middle of the night. When it first invades, the patient jumps up in bed, throws off the clothes, draws aside his curtains, frequently goes to the window and throws it open, and also the door, to get as much air as he possibly can. After a certain time he finds that he breathes more easily, can take a deeper inspiration, begins to cough deeper, begins to expectorate, and then he goes to bed again a great deal better. Very often at the same time the next night the scene is repeated. When a person is subject to this occurrence, frequently the breathing for the most part is not quite free in the intervals; it is generally difficult. A large quantity of wind is made in the stomach; it cannot be generated by any simple chemical process, that is out of the question, because a person in this condition, just like an hysterical woman, in a moment, from not having been distended at all, becomes filled with wind, and sends forth torrents as if there were no end to it; and this occurs without anything in the stomach promoting the production of it. A great quantity of wind is disengaged from the stomach and intestines; but I think there can

be no doubt that it can be secreted like fluid; for you see a woman in a moment, from a passion of the mind, swell out and pour forth torrents. This will be the case whether there be anything in the stomach or not; and I believe the wind in these cases is always inodorous. The wind—the gases from the alimentary canal—have been analysed by the French, and their nature is ascertained from the contents of the stomach, and intestines, an account of which you will find in MAGENDIE's work; but whether this wind has been analysed I do not know. At the same time there is generated a large quantity of fluid; patients generate both wind and water. The water is pale, and it is as genuine water as can come from the body; and in immense quantities, containing very little saline or animal matter. Some persons have these attacks only at certain seasons of the year, and some only in particular places. If they be subject to the affection, they are rendered far more liable to it by eating what is ill suited to their stomach—eating articles which they have found will not agree with them. Sometimes indigestion precedes an attack of this description; sometimes there are symptoms of the nervous system, such as sleeplessness and headache; and sometimes there is a great itching of the skin. Some have it only for a few nights, and some for many weeks. I have seen it in infants at the breast, where, from the very slightest degree of bronchitis—the slightest catarrh, they have been seized at different periods of the day with violent wheezing, which ceases almost as suddenly; and therefore I have no doubt it is asthma. I have seen several instances of it, in boys below puberty and above it, and very frequently it attacks young adults.

Persons may be subject to it for many years, and then it may cease entirely, without being followed by any other disease. A patient shall at one period of his life entirely cease to be asthmatic, and this cessation of the disease may be at all ages. With some, the tendency to it is so strong, that they are sure to have it wherever they reside. There are always exciting causes enough to produce the disease in them. I have sometimes seen it attended with a violent spasm of the respiratory muscles, so that patients have had violent pain; and yet, without any bleeding; simply from stimulating remedies, this pain has ceased.

Although this is the regular form of the disease, yet, similar to epilepsy, it sometimes puts on a very great irregularity. Some persons in the fit will make a crowing noise; some will have a number of successive deep inspirations, and then they will suddenly cease to breathe. There is every sort of variety. The disease is literally pure spasm, and does not necessarily depend upon anything organic. The slightest pressure in some people will cause this affection.

Mr. LAWRENCE has described a case in which violent paroxysms of asthma were induced simply by an aneurism of the innominate, causing the least possible degree of pressure upon the trachea. The disease with which asthma is most commonly united, is chronic bronchitis. When persons labour under the latter affection, besides constant difficulty of breathing, they are subject to great aggravations of it in the course of the day, from time to time, particularly at

night. As in this case they spit up a great deal, the affection is called *humoral asthma* by old authors. But you have chronic asthma continually without this disease; you may have it without this tendency to a spasmodic affection. Sometimes it is united with pleuritis and peripneumonia, and on bleeding such patients you have buffy blood; but in a case of genuine asthma it is rare for the blood to be buffy. It is frequently seen united with diseases of the heart; but then it is to be remembered, that nothing is more common in organic diseases of the heart than for chronic bronchitis to exist. The heart is seldom organically diseased to any extent without the bronchiæ being more or less inflamed.

DIAGNOSIS.

Asthma is easily distinguished from hydrothorax, because if you strike all over the chest you have a clear sound; and if you listen, you have respiration all over the chest, which you cannot have if any part of the cavity be filled with water. You distinguish it from bronchitis by the absence of sonorous and sibilous rattle, excepting in the upper parts. Down below, throughout the rest of the chest, you hear not those peculiar sounds of bronchitis—or, if you do hear something like them, they suddenly cease, they go off, and then there is the sound of health—but while bronchitis lasts you have sonorous and sibilous rattle, and these only subside either by art, or the disease itself ceasing. In general, you will hear a loud respiratory murmur all over the chest, louder than it should be. The absence of other diseases, together with the suddenness of the attack, the suddenness with which it goes, and its extreme aggravation from time to time, will enable you to form your diagnosis.

PROGNOSIS.

The prognosis in the disease, so far as the paroxysm is concerned, is generally good; but I have seen people die from pure spasmodic asthma. A young man was brought to the hospital in a great fright, who had been asthmatic. He could only breathe while on his knees and elbows; and no signs of any other disease were found during life. He was cold and pale, and the pulse was not to be felt; and in the course of two or three hours he died. He had been asthmatic; but this fit produced such an asthmatic state that he did not survive. On opening him no signs of disease were found; but the lungs were all distended, had lost their contractile power, were unable to collapse, and they were as light as a feather. You have a prognosis to make of the paroxysm, and one as to the duration of the disease—the one is favourable, and the other unfavourable; but then the prognosis respecting the distant event must depend upon the existence of other diseases. The prognosis, so far as the asthma is concerned, is not bad. People labouring under this affection often live to a great age, and the disease often ceases of itself. But you must always consider in these cases, that there may be some other disease—chro-

nic bronchitis, chronic peripneumonia, or disease of the heart—but if not, there may be a tendency to phthisis; and therefore all these things must be taken into the account in forming a prognosis.

Very often it attacks those who are thin and pale; but they have pure, simple, spasmodic asthma. It as frequently, however, attacks those who are short and full—bulky; and these generally have a combination of asthma and chronic bronchitis; they expectorate a great deal. Of the real predisposition, however, we certainly do not know the nature. We know it is often hereditary. The exciting causes of the disease are in general cold and damp, and especially fogs. Some persons have it only in cold weather; others have it only in damp, foggy, moist weather; but there is a great variety in this respect. Some persons have it only in summer, and are all the better for cold weather; and some never have it but in particular situations. In some persons this disease is only induced, as it would appear, by particular exhalations from the vegetable kingdom—emanations from grass in flower. These are the people who have asthma only in summer; but by far the greater number who have the disease aggravated in winter are pretty well in summer. All these cases may be resolved into that particular form of disease which has been called *hay fever*, or *hay asthma*. In some cases there is a simple spasmodic affection of the breath, and in others there is a violent catarrh united with the spasmodic affection.

CATARRHUS ÆSTIVUS, OR HAY FEVER.

Certain writers have spoken of what they call a summer cold, *catarrhus æstivus*. Dr. Bostock states, that at a certain time of the year he begins to sneeze, he has a running of the eyes, and all the symptoms of catarrh, and that these continue for a certain length of time, wherever he is, and whatever he does. Before that time I had heard people talk about hay fever and hay asthma, but I could not comprehend what they meant. It appears to be quite an aristocratic affection, not at all visiting haymakers, or those who have to do with hay and straw. I never met with such a thing in practice. I disregarded it entirely, supposing it to be a sort of aguish or hypochondriacal affection, of which those who had little to do frequently became the subject. I had no idea that it was an affection of the chest till I read Dr. Bostock's paper. I happened, however, last year, to be attending in a family, where the mother of the lady was said to have been the victim of it many years. She stated, that at a certain time of the year, when the grass came into flower, she was dreadfully distressed in breathing, and was obliged to leave her house, and go to as barren a place as she could find at the sea-side, and there she obtained comparative ease. She told me she had tried everything in vain; that nothing did her good. She was not the only member of the family afflicted with it, for an uncle, some of her nephews and nieces, and some of her cousins, laboured under it. It was decidedly an hereditary family matter. As there are some curious features in these cases, I alluded to them in a clinical lecture

delivered at St. Thomas's hospital. I knew that that course of lectures was published. I received several letters from gentlemen, giving me facts upon the subject.

One of these letters was received from Mr. GORDON, who stated, that in the MEDICAL GAZETTE for 1829 he had described the very same thing. I was not aware of it at the time, or I should have felt it my duty to refer to it. He says, "I have witnessed several instances of hay fever and hay asthma; I have observed, that the best preservative against their attack is the cold shower-bath. For the last two seasons, however, whilst employing this, I have administered the sulp. quinine with the sulp. ferri; the former in doses of two or three grains, the latter in doses of one grain, three times a day. The success which has attended this prophylactic treatment has exceeded my highest expectations. With two of the most severely afflicted of my patients on whom it has been tried, it has answered so effectually, that both of them have this year been able to walk through a rich meadow without suffering in the slightest degree; although formerly, if they had ventured out into such a situation, they would have brought upon themselves all the agonies of spasmodic asthma."

"The symptoms were taken principally from the cases of two gentlemen who have been annually attacked with hay asthma for the last fifteen or twenty years. They consulted Dr. B. and most of the eminent English physicians, as well as several practitioners on the Continent, but derived no relief from what was prescribed for them. By means, however, of the shower-bath, the quinine, and iron, they have for the last two years obtained a complete emancipation from their tormenting disorder."

Another letter is from a practitioner at Bristol, who says, "I knew nothing about hay fever, as any definite disease; but your description of it is, with little exception, a very accurate detail of what I have suffered every June for several years."—Here was a gentleman who had been ill every summer for several years without being aware what his particular complaint was.—"Were I not," he proceeds, "at the present time, annoyed by this troublesome affection, I should probably not have found leisure to give you the trouble of reading anything on this subject. "The attack generally begins with me the latter end of May, with great itching of the eye-lids, particularly at the inner canthi, from which I regularly, during this month, extract some cilia, which grow very near the cornea, and increase the irritation. My most troublesome symptom is sneezing: it is of a violent kind, and often continues till I have sneezed eight or ten times. The defluxion from the nostrils is most copious at these periods of the day, while, in the intervals, I have no catarrhal symptoms: the expectoration of clear mucous is also considerable. My sneezing attacks are sure to come on while I am visiting my patients, to my great annoyance. This comfortless state generally continues for five or six weeks, but is never sufficient to interrupt any of my employments, or render any confinement *necessary*, though I am always free from it when in the house. How far grass or hay have anything to

do with this affection I cannot satisfactorily determine. There are certainly several hay fields within a quarter of a mile of my house. The *air* seems to make me worse, and an open window is my abhorrence while I am thus indisposed. Last week I spent an hour or two in a friend's hay field, with a party of ladies; but the syllabub, the ladies, and the pastoral sports, had no amusement for me, and I was glad to get to a corner of the park, where my streaming eyes and nostrils, and noisy sternutations, might escape both remark and commiseration. Certainly, during that afternoon, in the hay field, was the worst attack I have had, but whether it was the *air* which was cooler than usual, or the *hay*, I could not tell. I must, however, confess that my *fancy* on the subject has always leaned more to the effect of some subtle particles of an irritating nature than to the ordinary causes of catarrhal affections. My lungs are rather asthmatic; formerly I had a good deal of asthma. I have never found time to try any remedies, but shall certainly bear in mind yours, should I have this visitation next year."

Dr. BULMAN, of Newcastle-upon-Tyne, has given me several cases:—

"D. B., æt. 36, is of a spare but robust habit, and free from any constitutional or hereditary affection, except perhaps the gout. He has been liable since his seventh year, if not sooner, to annual attacks of the disease so ably described by Dr. BOSTOCK, under the name of *catarrhus æstivus*, in the 14th volume of the *Medico-Chirurgical Transactions*. The disease invariably commences about the second or third week in June, with a sense of uneasiness, heat, and itching in the tunica conjunctiva, but the itching is more particularly severe along the tarsus, and in the caruncula lachrymalis. On examination, this membrane is found to be considerably inflamed, but, except in the severer attacks, the inflammation does not extend to the eye-ball. The symptoms before mentioned are attended with watering of the eyes—increased secretion from the meibomian glands—a sense of fulness or rather distention of the eye-ball—intolerance of light—and weight in the forehead. The itching gradually increases in violence till it becomes almost insufferable, compelling the patient, notwithstanding every resolution to the contrary, to rub his eyes, by which it is always considerably allayed. In the course of a few days, but sooner if the patient has exposed himself to the sun, the inflammation extends to the schneiderian membrane of the nose, attended with itching and stuffing of the nostrils, increased secretion of mucous, and violent paroxysms of sneezing; which are also excited by dust of any kind, exposure to the heated external air, effluvium of new-made hay, and the odour of the bean-flower—perhaps, also, by other odours. As the disease continues to advance, the membrane of the fauces and lungs is affected, giving rise to a sense of dryness and extreme itching or pricking in the throat, and slight cough, with tightness of the chest, and difficulty of breathing; but there is little or no expectoration.

"There are several paroxysms daily, which commence with intolerable itching and tingling of the eye-lids, and are followed by the

most violent fits of sneezing, accompanied by a copious discharge of mucous from the nasal passages; after which the patient obtains a longer or shorter respite; for the paroxysms recur at uncertain intervals, save that one invariably takes place about half an hour after rising in the morning. "The tightness of the chest and difficulty of breathing, though sufficiently distressing, have seldom been very urgent; but on two occasions they rose to such a height that the patient conceived himself in danger of instant suffocation.

"In severe attacks the eye-lids become œdematous. During the whole course of the disease the patient is languid and listless, and, though restless, is averse to motion. His temper is more irritable than natural; but his pulse is scarcely, if at all, affected. His bowels are regular, and his appetite rather increased than diminished.

"The disease continues till about the end of July or the beginning of August, when it almost imperceptibly declines; and it is remarkable, that the patient is then able to expose himself to the hottest sun without the recurrence of any of the above detailed symptoms,"—showing, of course, that it does not depend upon the temperature,—"and indeed, during the violence of the disease, exposure to the open air early in the morning, and in the evening after sun-set, causes but little inconvenience. The patient has had attacks of the disease in France, Switzerland, and Italy. In the two former countries it was as severe, but not more so, as in England; and it is extraordinary, that in Italy, notwithstanding he was daily exposed to the powerful sun of Rome, in the month of June, the disease, though it began earlier, was nevertheless considerably milder, and also of shorter duration, than elsewhere.

"Most of the internal remedies mentioned by Dr. Bostock have been tried, but in vain. Bathing in salt water, both cold and tepid, has been had recourse to. The former is apparently without effect; the latter has only seemed serviceable, inasmuch as it has relieved the tightness of the chest, and the difficulty of breathing. Of local remedies the only one which has proved of any efficacy is the ung. hydrarg. nitratis, properly diluted. This, though it occasions considerable pain when applied to the eye-lids, has always greatly allayed the itching and smarting, and has even seemed, probably by being carried into the nostrils with the tears, to diminish the irritability of the schneiderian membrane, and hence lessen the violence of the sneezing, a most distressing symptom. The vinum opii was tried many years ago without any benefit, as in the case of Dr. Bostock.

"With respect to a residence at the sea-side, it may be observed, that the only instance of the disease attacking the patient previous to the usual period was in the last week in May 1829, during hot weather, whilst he was residing for a few days in an airy house, situated on a cliff overhanging the German ocean. The attack, however, was slight, and lasted for two days only; but again returned at its usual period in June. As to diet, the patient is decidedly worse when living low. The above detail was written some months ago," continues Dr. BULMAN, "and I am happy to state, that the patient

almost entirely escaped the disease this year, by merely commencing, some time previous to the expected period of attack, to anoint the eye-lids at bed-time with the ointment, and bathing them occasionally during the day with a collyrium composed of rose-water and acetate of zinc, and after this had dried, smearing them with simple spermaceti ointment, to remove the stiffness left by the collyrium.

"I have only heard of one other example of this curious disease in this neighbourhood. The patient is a gentleman of fortune, and the instant he approaches a hay field he is attacked. I have never been able to hear of the disease in the lower walks of life, though my situation, as physician to two extensive charities in this town, has afforded me ample opportunities of meeting with it did it exist among them. I may add, that none of the patient's family—that is to say, neither his father, nor mother, nor brothers, nor sisters, though originally amounting to thirteen—were ever affected in the slightest way by this distressing complaint.

"There is another case with which I have been favoured by Mr. POYSEY, of Wirksworth:—

"Mrs. H., of middle age, of a full and rather corpulent habit, has been subject for many years to this periodical complaint. The attack generally commences about the middle of June (the old time), sooner or later, according to the heat or closeness of the weather. A sensation of heat and irritation is first experienced in the eyes and nostrils, accompanied with sneezing, fever, and restlessness. These symptoms (if the complaint increase) are succeeded by a sense of constriction about the chest, aggravated very much by exertion, and increasing towards night to a regular asthmatic paroxysm. In the severer attacks of the complaint there is a permanent wheezing and difficulty of breathing, with an inability of moving, or of remaining in a recumbent position, and accompanied with pain, fever, quick pulse, and a great degree of general indisposition, lasting for some weeks, and leaving great debility, with an œdematous state of the feet, ankles, &c.

The treatment has been conducted on general principles."

To show the hereditary nature of this affection, I will read a little more of Mr. POYSEY's letter:—

"Mrs. P. A., also the mother of a large family, has had this complaint several years. The symptoms in her case resemble very accurately those described by Dr. Bostock, viz. a sensation of heat and fulness in the eyes, accompanied with redness and discharge of tears. These sensations go on increasing, and a fulness in the head is experienced, with irritation of the nose and violent sneezing. To the sneezings are added a farther sensation of tightness of the chest and difficulty of breathing, with a general irritation of the fauces and trachea. These symptoms are worse by paroxysms, and are often traced to changes of the weather and other causes; they do not, however, as in the instance of Mrs. H., go on to regular asthma. The complaint wears itself out toward the middle of July. This lady decidedly considers the cause of her complaint to be an emanation from the flowers of grass. It begins when grass comes into flower.

There is a perceptible increase, or paroxysm, when she is exposed to these effluvia; and when the flowering time is over, she can go into a hay field with impunity, which she could not previously do. The father of this lady is immediately seized with violent and continued sneezing, inflammation of the nose and eyes, when he goes into or approaches a hay field, but the symptoms go off when he is removed from the smell of the hay. He therefore carefully avoids the exciting cause, and escapes the disease.

"Three of the sons of Mrs. A. are also subject to this disease, and the symptoms are similar to hers, though less severe. One of these young gentlemen is now at Geneva, and had the complaint there this summer. A younger son, a boy about ten years old, is made asthmatic by the smell of Guinea pigs."

You see, therefore, what the character of this complaint is—that it is not merely spasmodic asthma, but excessive irritation of the mucous membrane of the eyes, nose, and the whole of the air passages. It is a combination of catarrh and asthma.

I have no doubt myself whatever, that it arises from vegetable matter diffused in the atmosphere—that it is derived from the flowers of some plants—and that in a great number of instances it comes from grass. The lady to whom I have referred, and who informed me that she had had the disease so many years, told me that she was once away from home at an inn, where she conceived there was no danger whatever of being affected by the flowers of grass; but she was seized with a violent difficulty of breathing, and great irritation; and on looking out of a window, she found that there had just been brought into the inn-yard a cart-load of hay. She told me also, as another proof, that the affection arose from this source, that her children once came into the room after having been playing with hay, and instantly her breath became affected. She also informed me, as a still farther corroboration, that if she handled fresh hay her hands instantly became affected, showing the morbid sensibility of her skin (skin, you will remember, is analogous to mucous membrane) to the flowers of grass. I have a letter from this lady, in which she states, "I was first affected with the disease in 1798, and from that period have suffered annually from it more or less. It usually attacks me about the latter end of May, and continues till the middle of July, and sometimes till the close of that month; but this has occurred when the weather has been unfavourable, and the hay harvest has been particularly late. I have never suffered after the hay has been got in.

"The first symptoms are irritation of the nose, violent sneezing, and all the usual attendants of a cold in the head. These are succeeded by spasms affecting the breath, which have often been so severe as to threaten my life, and are the most distressing part of the disease. Violent irritation of the eyes, throat, and the whole interior of the head, has been experienced when passing by fields where hay was making, which symptoms have all disappeared very soon after entering a room, and excluding as much as possible the external air.

“ I believe the complaint with me to arise principally, if not entirely, from the farina of the grass. It has commenced sooner or latter according to the season ; and my first symptom has generally occurred when walking in the fields, and not till the grass is in flower ; and from that time till the hay harvest is completely finished I suffer whenever I am exposed to the air. I have tried the sea air, and also London ; the former I found most beneficial, although the latter was productive of considerable relief. Ramsgate and Harwich have suited me the best, which I attribute to the small quantity of grass grown in the neighbourhood, and to the bracing air, which has invigorated my general health. At all places by the sea, I have been immediately sensible when a land wind blew, and felt instant relief when it came off the sea again ; and two years, when this was the case, at Harwich, nearly the whole of the six weeks I spent there I suffered scarcely any inconvenience. I walked out daily, went frequently on the water, and bathed regularly in the sea. Other seasons I have been obliged to shut myself up entirely in the house, not to allow a window to be opened, or to permit any one who had been into the air to come near me. My children, in approaching me after being in the hay field, have often brought on a fit of sneezing, or a spasm of my breath ; and this was once effected by their sitting down by me to tea, after playing in the barn where the new-made hay was stacked, some time after the season was over. Once, at Harwich, when walking on the shore, I became suddenly affected which occasioned some surprise, as no grass was apparently near ; but on the following day I found that hay was making on the top of the cliff at the time I was walking under it. At Cromer, two years since, I was suddenly seized with shortness of breath, &c., after the complaint had subsided, and all the hay finished in the immediate neighbourhood ; and upon going into my bedroom, I saw an immense stack making in a yard near the house, and which had been brought there from a field five miles distant. In 1817 I was perfectly well till the grass was cut in our own fields, when my breath became so seriously affected, that it was thought necessary to remove me directly from the infected air ; and I was with difficulty taken from my bed to the carriage which was to convey me to Harwich, twenty miles distant ; and when I arrived there, I was so much relieved by the change of atmosphere, that I walked up with ease two pair of stairs to bed, and had no return of illness that season. In packing baskets with hay I have frequently had fits of sneezing, and tingling in my hands, and have every reason to believe that the seeds of the grass is poisonous to me.

“ I have long ceased to have medical advice for the complaint, and by avoiding the exciting cause as much as possible, and using palliatives on the first attack, I have of late years suffered less than formerly. I always confine myself entirely whilst the hay is making near me, and at other times walk with salts or some other pungent scent in my hand, and when I feel the irritation commencing, if I snuff it up, I can frequently keep off a fit of sneezing. My breath

is relieved by sedatives, and smoking stramonium will always check the asthmatic spasms.

“ My uncle, Mr. ****, of ****, and his son, were affected about the same time as myself; the former with sneezing only, and the latter with all the symptoms. They both attribute it to the grass; and the son is obliged to come to London when his hay is making. A cold season suits me best, and the symptoms are aggravated by a close air, which may perhaps arise from the obnoxious particles hanging in the air, and which of course are inhaled in larger quantities. “ The disease has certainly increased rapidly during the last twelve years, and has attacked persons of all ages. Most of those with whom I have conversed on the subject, believe it to be occasioned by the farina of the grass, or something to them poisonous which floats in the air at that time, and which comes when the grass begins to flower, and departs when the hay harvest is over.

“ I have no disposition to asthma at any other period of the year; scarcely ever have a cold, or occasion to use a pocket handkerchief. My habit is relaxed, and I am always benefited by a cold bracing atmosphere. I have occasionally found my breath considerably relieved by going out of the air into a crowded assembly, and from our own house in the country to one in a narrow street in the middle of a town. It is conceived by some persons that it is the sweet-scented grass which is productive of this affection; at least many persons have decidedly been affected when they have gone near sweet-scented grass in flower; and some ascribe the greater prevalence of the disease now than formerly, and consequently the notice of the occurrence, to the introduction of some new species of grass into this country.

TREATMENT.

Seeing that the emanations from the grass, the pollen in all probability, was a compound, but whose constitution I myself do not know, I fancied that it might be destroyed in its composition, broken up by the chlorides, the same as some animal matter. I therefore requested a gentleman who had the disease to try it, and he did so with the most perfect success. This was the first case that I ever saw of the disease. A gentleman came to consult me upon it about three years before I saw the lady. I told him at once that I knew nothing of the affection. I casually met him after I had read Dr. Bosrock's paper, and I requested him, as a favour to myself, to try the effect of a solution of the chloride of lime or soda. I directed him to place it in saucers about the bedroom, to have rags dipped in it and hung upon the backs of chairs, to wash his hands and face with it night and morning, and to carry a small bottle with him, and repeatedly smell it in the course of the day. He complied with my request, and the result was highly satisfactory. The irritation of the ears (for in his case they also were affected), the tingling and the smarting of the eyes and nose all ceased; and by using this precaution he got through the summer exceedingly well. Whether the chloride acted by destroying the emanations, or by lessening the irritability of

the mucous membrane, or of the skin, I do not know. The chlorides, if well diluted, diminish the morbid irritability of the surface, and therefore they might in this case have acted in that way; the treatment, however, was perfectly successful. The lady said that she had used everything, but in vain; and I could not prevail upon her to try the remedy.

Mr. POYSER says, "The chloride of soda has been of great use to this gentleman, removing at once the sensibility of the nostrils and eyes, and thus allaying the sneezing, cough, and inflamed and watery state of the eyes." But he adds, "Mrs. P. A. has not experienced any perceptible advantage from the chloride." Three out of four, however, did. When persons are subject to spasmodic asthma also, I should recommend them to breathe through water impregnated with the chloride; and a larger quantity ought then to be employed about the bed-rooms than when they have hay fever alone.

Many persons have a peculiar susceptibility of ipecacuanha; this is by no means uncommon. If ipecacuanha be powdering in a chemist's house, some persons will be seized with a violent paroxysm on entering it. I have known an instance or two of this description. A person who had such a susceptibility of ipecacuanha, that on entering a room and being seized with asthma, he declared that there was ipecacuanha about. It was at first denied, but at last some one recollected that there was a box of ipecacuanha lozenges in a table drawer. I may mention here, that other persons are peculiarly susceptible of various things. Some are affected by the emanations of an animal. SHAKESPEARE alludes to some females who cannot bear a sucking pig; and some cannot bear a cat. It does not produce asthma, but the emanation from a cat has such an effect upon them, that they are quite wretched. Mr. POYSER states, that a son of a lady who had hay asthma is made asthmatic by the smell of Guinea pigs. When he is in a room where they are, he is immediately seized with difficulty of breathing. I have a note from a gentleman, in which he informs me that a nobleman with whom he is acquainted, is affected by sneezing and asthmatic affections by coming in contact with a hare, or rather the fur of a hare, and remains ill for several days afterwards. He experiences great suffering whether the hare be dead or alive.

I have another letter, from Dr. KING, who says, "I know a member of parliament who has come to Brighton every summer for some years, in order to avoid the disease at home. A lady also comes from Clapham for the same purpose, and with the same good effect. The lady, however, whom I saw with it, told me that she knew a cobbler's wife who had it, and that several persons of the poorer orders, to her knowledge, had the disease." Dr. KING, in his letter, goes on to say, "Last year I met, at Lewes, a farmer's wife, subject to the same complaint, and obliged every hay season to take refuge in a town. She bears up against it as long as possible, shuts herself close up in her room, till a sense of suffocation comes on, as in common asthma, when she is obliged to throw open the window, by which she lets in a fresh dose of poison, and has the same routine to go over again, till she is obliged to fly. As soon as she quits the

regions of hay, she experiences immediate relief. I dined lately in company with a lady who went into convulsions as soon as her plate was put before her, containing some peas which had been boiled or dressed with mint. We carried her out of the room, and she did not feel quite well all the evening. Her daughter, who sat next her, was not similarly affected." These are circumstances worth knowing, because, if you were not acquainted with them, you might ascribe cases of this description to whim and fancy. The poorer orders consider it as merely a common cold, and they do not apply for medical advice, unless they are very ill; or if they do, it is a solitary case, and is treated as asthma.

LAËNNÉC says that the following fact was communicated to him by one of his colleagues, as affording a curious instance of nervous affection in a man not subject to asthma. "A man, forty years of age, slightly hypochondriacal, but otherwise in good health, wished to go on horseback to pay a visit some leagues distant from his house. As soon as he left the town where he resided, which is situated in an extensive plain, he felt an immediate oppression on the chest, from the impression of the country air. He took no notice of this at first; but the dyspnœa having greatly increased, and being now attended by a sense of faintness, he determined to return. He had scarcely turned his horse, when he found himself better; and in a few minutes he recovered both his breath and his strength. Not suspecting any relation between this momentary uneasiness and his journey, he once more attempted to advance, and was again soon attacked with the dyspnœa and faintness. On turning towards the town these passed off. After having made repeated attempts to proceed, and always with the same result, he finally returned, and in just as good health as when he set out. I have lately met (continues LAËNNÉC) with a case very analogous to the one just related, only that in this the symptoms were more severe and the cause different. Count H., a man of robust constitution, and although now eighty-two years of age, still possessed of a degree of vigour unusual even at the age of sixty, has been subject from his infancy to attacks of asthma, and is habitually somewhat short-breathed. Since his fiftieth year he has had a slight cough, and in the morning a pituitous expectoration, intermixed occasionally with some yellow sputa. The asthmatic attacks have always been unfrequent with him, but they have invariably come on if any person has inadvertently shut his bed-room door, or if his night-lamp has by any chance gone out. As soon as either of these accidents occur, he immediately awakes with a feeling of oppressive suffocation, and after a few minutes he becomes insensible. On the occasions alluded to, the attack is got rid of by opening the doors and windows, lighting the candles, and carrying the patient into the open air." I presume it is the smell of the lamp which causes it, and perhaps the emanations from his own body—the smell of his own perspiration when he is shut up: that possibly is the case.

You see, therefore, that in many instances of asthma there is a violent external exciting cause; at least, unquestionably there is an external exciting cause, but it is very various in different individuals.

A predisposing cause in many persons is bronchitis, and in others, various organic diseases of the chest. In some persons, without any external excitement at all, without moisture or coldness, or confinement from the air, there will be an asthmatic paroxysm simply from an irritable state of the mucous membrane, and from organic disease itself.

TREATMENT.

In the fit, if the patient be plethoric, it may be well to bleed; but in general this is not necessary. One of the best things you can do is to give the patient a full dose of opium. A very large quantity is frequently borne, on account of the exceedingly deranged state of the system. Forty, fifty, or sixty drops of laudanum are frequently not more than sufficient to relieve the fit. I once had an extraordinary case of this kind, where such a dose was given, without any effect. A drachm was then given, but still without any effect, and so also were two drachms. Seeing this to be the case, the medical gentleman who was attending the patient grew out of patience, and gave half an ounce; by means of which he merely got rid of the paroxysm. When the next paroxysm came on, however, that dose failed entirely, and six drachms were given, which produced tolerable relief, but not enough; and at last many drachms were given for a dose, with no more effect than that of putting a stop to the paroxysm. These are states of the system in which ordinary doses are of no use; but in general, from forty to sixty drops are borne very well, and are sufficient. It is useful to combine the laudanum, in these cases, with a dose of ether; and if you mix them up with ammonia, or with musk, or assafœtida, you will generally add to their good effect. But opium generally answers the purpose. Should, however, the patient be plethoric, and have chronic bronchitis and fulness of the chest, it would be very wrong to give a large dose of this description, lest it should produce apoplexy; and it would be right to take away a certain quantity of blood. Some patients are relieved by cupping, and some by dry cupping.

When the paroxysm is over, it would be useful to endeavour to prevent its return by giving a dose of one of the preparations of opium together with ether, but in a smaller quantity than in the former case. Some persons have told me that they have seen very great relief from cantharides in this complaint and in whooping-cough, but whether they really are beneficial I cannot tell: the use, however, of opium, ether, musk, and assafœtida, is unquestionable. I have seen many persons who have derived benefit from smoking the leaves and stalks of stramonium chopped up together. Some have found the smoke of tobacco serviceable. You will find it of very great use to make patients drink strong coffee, without milk and sugar: it is an old remedy, but a very good one. There ought to be no grounds in it, because they may disturb the stomach; and that organ, in this complaint, is generally much disposed to indigestion. If it should so happen that a paroxysm comes on from a hearty

meal, a good emetic either of mustard or sulphate of zinc—something which will not nauseate the patient long, but empty the stomach as quickly as possible—will be found very serviceable. If, however, there be any chronic bronchitis present, you will find squills, digitalis, colchicum, and ipecacuanha, will all be useful; some by increasing the flow of urine, and others by increasing the secretion from the air passages. Some have found relief from opium and prussic acid, and others from hyoscyamus and conium; but I think, if you want an immediate effect, there is nothing equal to opium and stramonium. But there is no rule for these things; some persons are relieved by one article and some by another. It is right to consider this as a spasmodic disease which may be removed. It may arise from a full stomach, and then an emetic is the best remedy; it may arise from grass, and then the chlorides scattered about the room, I conceive, would be the best thing; but if you cannot remove the exciting cause immediately, or not at all, then you will find that the best mode will be a good venesection and opium.

Besides giving the same things, and besides removing the patient from the exciting cause, if it be known, it is of great use to pay attention to the stomach and bowels. Everybody knows, that if the abdomen be distended, the diaphragm cannot descend freely, and we can scarcely breathe; and asthmatic people suffer under these circumstances to a very great degree. Dr. WILSON PHILIP has spoken highly of galvanism in this complaint, and no doubt it does good; but you cannot expect it to be universally efficacious, when you consider that it is often united with organic affections and chronic bronchitis. When persons are very weak, you find that tonics are necessary, particularly iron. Dr. BRKE used to exhibit the carbonate of iron particularly in the disease; but I have not found it useful, except as a tonic. In regard to the inhalation of chlorine, it may be had recourse to in every form of asthma. If you think proper, you may adopt the same means with regard to prussic acid and conium. Some have found benefit from tar, and others from tanners' liquid, put in one corner of the room. Another way of giving persons the advantage of these things is to impregnate water with them, and make patients breathe through it three or four times a day.

DISEASES OF THE CHEST—HOOPING-COUGH.

THE next disease, which is very much allied to the last in some respects, is hooping-cough.

This disease is called, in English, hooping-cough, from the peculiar noise attendant upon the cough. Sometimes it is called chin-cough; because it attacks children particularly, and chin, I suppose a corruption of *kind*, is the German for child. In Latin, it is called tussis-cough; or, to show its intensity, pertussis—much cough. This disease is easily known when it has been once seen. There are occasionally fits of violent coughing, with short expirations—a volley of them, and then one deep, long, hooping, crowing inspiration; and these are many times repeated. A quantity of vis-

cid phlegm is spit up, and very often the child vomits. The cough is exceeding severe; every muscle is put into action, the face grows red, the eyes run, and then in an instant the child, though apparently about to be strangled, unable to stand, runs about and plays as if nothing were the matter with him. This is very commonly seen, and the cough will come on day after day. At first there is catarrh and bronchitis, both of various intensity; sometimes the bronchitis is very severe, and the child very ill. Although, generally, spasmodic pertussis is sometimes highly inflammatory; and after the inflammatory stage is over, the spasmodic cough will frequently continue for months.

Sometimes the disease is ushered in by a violent cough, or a hoop, but sometimes the first notice is the child hooping, and then the nature of the disease is clear. Indeed you cannot call it hooping-cough until you hear the hoop. Generally speaking, if the disease is in the neighbourhood, any violent cough may be expected to end in hooping-cough; but before forming our opinion, we must be certain that the hoop is present. Now, the child may die, either from the violence of the bronchitis, or from its long continuance. The mere spasmodic affection does not usually destroy life; in the greater number of fatal cases, we find violent or extensive bronchitis, or peripneumonia. Sometimes, however, we find little thoracic disease; for hydrocephalus is a frequent termination of the pertussis. It is to be regretted that continued difficulty of breathing and violent cough will overstrain the vessels of the head, producing such congestion, that hydrocephalus is the result. I have seen a child die of convulsions, produced by the straining of the violence of the cough. It had, at first, only a common cough, such as the other children in the family had. But when the violent cough set in, it was so strained, that the parents fancied it would die, from time to time. Thus children may die from hooping-cough, or from the effects of it; and yet sometimes you discover but little mischief in the lungs; generally, however, you will find a large quantity of mucous in the bronchiæ; you find the mucous membrane red, thick, soft, and pulpy, so that there is clearly bronchitis. You also frequently find the lungs very solid; the air cells have been inflamed, and they are very much hepatized. I have found the lungs like liver; they did not collapse, and pressing them, scarcely diminished their bulk. When bronchitis sets in, you hear the silvery rattle which occurs in the breathing of adults, and the breathing itself is excessively rough and loud throughout the chest.

A child may die in two or three weeks, or it may not die for many weeks; but after the sixth or eighth week, it will generally recover; but it can scarcely be considered well in some instances for many months, as even a slight cold will cause a recurrence of the hoop. Children are generally the subjects of its attack, but it also affects adults. I have heard that the last archbishop of Canterbury had it a short time before he died.

It is frequently an epidemic. It is a disease which generally occurs but once; it is generally thought that it arises from a specific con-

tagion. Some, however, deny this; for myself, I was always taught that it was contagious: it may not, however, be so.

Any irritation whatever will provoke a paroxysm, when the patient has the disease; passion, moving about quickly, or anything stimulating will produce it.

Vomiting is usually considered a good sign, and in the absence of it, it is said the child usually gets worse. In one case, a lady who had the disease always fainted instead of hooping.

The danger depends on the affection of the head, and on the symptoms of bronchitis and peripneumonia; and the younger the child, the more dangerous the disease. It is said to be latent from a few days to a few weeks, and, like other contagious diseases, is not capable of communicating contagion beyond a month, or six weeks.

TREATMENT.

Now the treatment is divided into the inflammatory and the spasmodic; and first, for the inflammatory, as by far of the most consequence. If it be found that there is a constant oppression of the breathing, with spasmodic attacks, and violent cough at times; an accelerated pulse, pyrexia, sonorous, sibilous, and crepitous rattle, it will be evident that there is inflammation of the bronchiæ, or of the substance of the lungs—of the tubes or the air cells, or of both. In this state, you might give antispasmodic narcotics, and yet do no good: in fact, there is every probability that you would do great mischief. Therefore it is most important to detect any inflammation, and to combat it in the usual way. You will bleed generally if the patient is old enough, but at least locally; you will give mercury and emetics. Usually, you will find these means enough to cause the disease to yield, but you ought at the same time, to purge well with calomel, giving it in small and repeated doses. Very often, you will find an emetic, night and morning, quite sufficient to cure the bronchitis; still you should not trust to it in severe cases. The warm bath too, as in most other diseases of children, is of very great service. Some prefer the use of tartar emetic ointment over the chest to blisters. For myself, I rather incline to the opinion that blisters are not of much utility in this affection. Never allow children to overload the stomach, for after a full meal the cough becomes very troublesome. When inflammation is present, the food should be very light, and the child should not drink very much. Indeed, it will be of consequence, during the whole progress of the disease, to let the food be very small in bulk. As running, crying, &c., will aggravate the cough, children should be kept quiet, mentally and bodily. You will sometimes find the bronchitis linger on for weeks, the child being feverish, and wasting away. These cases you will generally find do well by attention to steady antiphlogistic regimen, and a regular state of the bowels.

Next to emetics, you will find narcotics of the most use. I do not say emetics will cure violent inflammation, but there is hardly a case of hooping-cough that will not be benefited by the continued use of

emetics; indeed, a large number of cases may be trusted to them, and to the administration of narcotics. Prussic acid is very useful; it does not subdue inflammation, but it alleviates the cough. You may give it to the youngest child, but in very small quantity; for a very young child, put one minim to one or two ounces of almond emulsion, of which give a teaspoon-full three or four times a day. When the disease has lasted some time, you will find opium useful in small quantity; DOVER's powders is one of the best forms. The extract of conium and hyoscyamus may be given in small doses, in mixtures or emulsions, but I think prussic acid is one of the best things. It has no more specific power over the disease than the other narcotics have, but it seems to relieve spasmodic irritation of the air passages better than other narcotics. After a certain time, if very slight bronchitis, or none at all exist, the debility and irritation of the air passages require tonics. Many metallic tonics have been given, but I think iron is the best of them. The sulphate is a medicine which may easily be given to children, dissolved in various mixtures, or they may have the carbonate mixed with treacle, as they are fond of sweets. I do not know that it has any specific power; but when the disease has existed for some time, you will find it very useful.

Some persons place a great reliance upon friction—some, external applications, and narcotics are frequently introduced into it. I believe ROCHER's embrocation is a very good remedy. You will find any stimulant that does not abrade the skin, will be very useful, united with a small quantity of opium. Friction along the spine is particularly recommended. After a time, there can be no doubt of the use of the cold shower-bath; but one of the best things is change of air. Every old woman says so, and I believe they are perfectly right. I have known, and so must every one, cases which obstinately resisted all treatment, cease after a change of residence. You will not find this at the beginning of the disease, it is only after it has existed some time. The inhalation of tar fumes has been recommended, but as these are acrid, it would be a wrong practice during the inflammatory stage; when the disease is merely spasmodic, they may be of use. The mode of employing the tar is, to put it in a pipkin, in the room, and let the fumes ascend, so as to impregnate the air. In doing this, great care should be taken that the fumes are not too strong, or they will cause irritation, instead of subduing it; but it is a remedy that is of great use. I dare say, chlorine used about the room, in the same way, would be beneficial; but great care is required not to use these things to the degree of producing irritation. This is a very troublesome disease to treat. You may save life by subduing inflammation, but with regard to removing the complaint, you may find yourself very much baffled. Much good, however, may be done, with respect to the spasmodic part of the affection, by good management—giving light food, and a very moderate exhibition of narcotics; but above all, prussic acid; its exhibition is not *very* satisfactory, though I am persuaded it is more satisfactory than that of any other narcotic.

SPASMODIC COUGH.

There is a cough which you every now and then see ; not hooping-cough, but what may be termed spasmodic cough.

This affection is, perhaps, united with a degree of inflammation, or perhaps not ; but if it be united with inflammation, it is out of all proportion to it. I believe this is what is meant by spasmodic cough. I have seen a few instances of a most violent cough, tearing persons in pieces, like hooping-cough, but still it was not hooping-cough, and it occurred in adults.

In this disease, I know that iron is by far the best remedy ; I have cured every case which I have seen of it, by the exhibition of the carbonate of iron. In many of these cases, there is no indication for bleeding, yet if the patient be robust, it may be expedient to bleed in the first instance, but I have always treated such cases with the carbonate of iron, and with great success. In every case, where the cough is out of proportion to the inflammation, or there is an organic state (even consumption), you will find iron to be the best remedy. Many cases, attended by cough and expectoration, which have been mistaken for phthisis, have given way to this remedy.

NERVOUS COUGH.

I have now and then seen a very extraordinary cough in young women. All very extraordinary cases, independent of organic disease, are to be seen in young women. Cases are continually seen in young women, of so extraordinary a nature, that you would not believe in their accuracy if you merely read them in books. I recollect very well seeing a young lady, single—these cases almost all occur in single ladies—who complained that every time she inspired, she coughed, night and day. She breathed slowly, but when the time came of expiration, she coughed ; but nothing was spit up, and on listening to the chest, there was nothing preternatural to be heard. She had coughed in that way for months. At first, it was quiet when she slept, but when I saw her it would not allow her to sleep. I did her no good, but what became of her I did not hear. It was the most extraordinary case I ever knew. She took the inspirations slowly, but when the time came for her to expire, it was a violent cough. I have no doubt but that it was a nervous cough ; that it did not depend upon any inflammatory or organic disease, and that it would cease entirely of itself in the most sudden manner. Occasionally, females will have a barking cough ; sometimes, a violent spasmodic cough, such as I have now described, only modified in various ways, so that they will make curious sounds—shrieking—all sorts of strange noises—unattended by organic disease, apparently arising from a mere nervous derangement of the parts. The nature of these affections altogether, I have not been able to ascertain.

DISEASES OF THE CHEST—PHTHISIS PULMONALIS.

THE first organic disease which I shall notice, one in which, unfortunately, we can do little or no good, and which causes more destruction in this country than any other affection whatever, is consumption.

I shall commence, not by describing the symptoms, but the changes of structure which take place in the lung itself.

This disease is called, in common language, consumption, or pulmonary consumption; and in medical language, phthisis pulmonalis, or phthisis. The word is derived from *φθίω* and *πνεύμων*.

This disease is apparently of a scrofulous nature; the substance which is deposited is precisely that which takes place in parts, when we say they labour under scrofula. Some have made varieties in phthisis, as being tubercular or not, but by phthisis is now meant, not an ulceration of the lungs, but a scrofulous disease of the lungs, which may produce, and will produce, ulceration, if it continues long enough. But ulceration not connected with this disease, is not called consumption. An abscess may be formed from common inflammation, rare as it is; but that would be called simply an abscess in the lungs, or *vomica*. By phthisis is meant, a deposition of a scrofulous substance in the lung, and all the organic changes to which its presence, or the state, which produces its presence, give rise.

The deposition takes place in minute granules, which are greyish, semitransparent, and pretty firm, lying close to each other, over a certain space in the substance of the lungs. Although, at first, they lie distinct from each other, yet they are close; they increase in size and in number; and as they increase in this twofold manner, they approximate, coalesce, and form a mass. When they increase in size and number, they possess less semitransparency, and become opaque and yellow. This change is first observed either at the centre or in some part of the surface, and from the point at which it commences, it gradually pervades the whole tubercle. When they are so few that they increase considerably, each tubercle seldom exceeds the size of an almond; but the masses produced by the aggregation may be very large. I have seen the whole of one lobe of the lung, and once I saw the whole of one lung, converted into a solid tubercular mass. It is right, however, to mention, that LAENNEC conceives that the tubercular deposition, in such a case as this, where the whole lung, or a lobe, has become a tubercular mass, has taken place in a diffused manner, that there has not been a formation of distinct, separate tubercles, but the substance was diffused in the texture of the lung; and he calls this mode of deposition tubercular infiltration. Whether he is right or not I do not pretend to say.

The tubercles are round, and rather oval; and this might incline us to suspect that their situation is in the air cells. That they may be formed within the air passages, is proved by the dissection of glandered horses by DUPUYTREN and ANDRAL, in which the bronchial tubes were filled with granules mixed with pus, and tubercular substances. Hence it is clear, that these substances may be found in the air passages; and ANDRAL says, that he also found a tubercular mass in the minute twigs of the bronchiæ, where no ulceration existed; of course, therefore, the deposit may be formed in the air cells. Many have said that this deposition takes place in the cellular membrane of the lungs; but when we consider its situation, and that it is found in the minute bronchial tubes, and not leading to

ulceration, it is probable that it is formed in the air cells. CRUVEILHIER says, that after injecting mercury into the bronchiæ of a living animal, he found each globule of the metal surrounded by a concrete substance of white granules, in various parts of the lungs. By injecting the mercury into the bronchiæ, it only reached the air cells, and he afterwards found granules formed of tubercular substance around the globules of mercury. Still, it is to be remembered, that a similar effect is produced in the cellular membrane, by injecting mercury into an artery, and that flakes, precisely similar to those in the lungs, are seen in the spleen, and in the cellular membrane of various parts. I will not, therefore, take upon myself to say whether the tubercles exist in the one or the other. They may exist in both; but there are arguments on both sides.

After a longer or shorter time, the tubercular mass softens, and generally first in the centre, and the greater part becomes a fluid resembling pus, particles of the original solid and friable deposit being seen in the midst of it. The lining membrane, and sometimes, indeed, the two membranes, which are continually found around the deposition, likewise secrete pus. Long after the tubercle is gone, the membrane which surrounds it, continues to secrete pus, and the cavity enlarges by ulceration. The openings of the bronchiæ, and the bronchial branches—which had been lost by the deposit surrounding them, blocking them up, compressing them, and causing them to ulcerate—are seen opening into the cavity of the abscess on all sides. Bands of pulmonary substance, and blood vessels shrunk and obliterated, are seen leading across the cavity, with tubercular deposit upon them, while a great number of blood vessels are entirely obliterated, and run flattened along the sides.

While some tubercles are advanced to this degree in one part, you will find some less advanced, and some very minute, both near and distant. You will see them in all degrees, in all states, in the same lung, but it is an established fact, that, in by far the majority of instances, the greatest deviations from a healthy structure exist in the superior portion of the lungs, and the tubercles are there generally deposited. The reason why there is the greatest devastation at the upper part of the lung is, because the tubercles are first deposited there. In proportion to the duration of the tubercle, in general, is the change it has undergone, and if tubercles, therefore, be deposited in the upper part first, you will expect the third stage to be arrived at there, sooner than at the other parts. Why the tubercles are deposited first in the superior part is unknown unless it be that the upper part of the chest is more exposed to the vicissitudes of temperature, than other parts. It certainly is a fact, with respect both to males and females, that the upper part of the lungs is less covered than the lower. In women, the neck and upper part of the chest are bare; and, with regard to ourselves, we have the breast more open than we are below, excepting since the close square waistcoats have come into fashion; but whether this will explain the circumstances, I will not pretend to say.

Some have made observations upon which lung is most affected

with tubercles; **LAENNEC** says the right, but the majority of authors say the left. I have never made any observations on the matter; but I suppose one side as much subject to it as the other.

The intervening portions of the lung dividing the tubercular deposition, are frequently turgid with blood, and with a bloody serous fluid, and sometimes indurated, and either red or grey, the substance between the tubercles is by no means always healthy, but is generally in the condition I have now stated. The bronchial membrane, if you slit it up, is frequently found red, and evidently smeared with a far greater quantity of mucus, than in health. Thus there is evidently peripneumonia, after inflammation of the substances of the lungs, and likewise bronchitis. There can be no doubt at all, I think, that by far the greater quantity of expectoration in phthisis, is derived from the bronchial membrane; a much larger quantity is furnished by it, I am convinced, than by the abscess; and the fluid secreted by the bronchial membrane is, as in common bronchitis, of all degrees of consistency, and of all degrees of quality.

Now, admirably as the morbid anatomy of phthisis has been investigated by the French, I am bound to do justice, on this subject, to one of our own countrymen, as I formerly did on the subject of enlargement of the air cells, to **SIR JOHN FLOYER**, and to **DR. BAILLIE**, a truly eminent physician of the last generation. In the **MEDICAL COMMUNICATIONS** you will find a very admirable paper, on the morbid anatomy of phthisis, by **DR. STARK**, who was a very clever young man, and fell a victim to his ardour in investigating morbid anatomy. **DR. STARK**, nearly fifty years ago, pointed out that phthisis was essentially a tubercular affection—a fact which, though known to **HIPPOCRATES**, had been passed over by almost every other ancient writer, Greek, Roman, Arabian, and by many of the moderns. **SYDENHAM**, himself, considered tubercles and abscesses as rather the effect of the disease, than as the disease itself. **BOERHAAVE** was not aware of the subject. **DR. STARK** established that this was a tubercular disease, and, in his paper, traced the tubercles from their original minuteness and solidity, to their enlarged and softened state. He asserted, that the chief seat of the affection was the superior and posterior part of the lungs, and particularly, he says, the left lung; agreeing, therefore, with a great number of writers, in opposition to **LAENNEC**. He stated, that the bronchial ramifications were never obstructed or obliterated, but opened into the cavity; but that the blood vessels suddenly became constricted near the orifice, and even obstructed by a coagulum, so that an injection would not pass into the abscess, from the large blood vessels, nor flow into the blood vessels about the abscess. He found that the injection rendered the parts quite hard, so that parts which appeared firm before, became soft by contrast. He also mentioned, that the parts, unaffected by the tubercles, but immediately around them, are generally red and firm; so that he found, between the effects of the tubercles, and this induration, that about one-fourth only of the lungs, in extreme cases of phthisis, remained fit for duty. He ascertained, that the tubercles

generally have a capsule, and that adhesions of the costal and pulmonary pleura generally exist, where an abscess is within. You will find, when you open persons who have died of phthisis, and when the tubercles exist near the surface, especially if they be softened down, that there are adhesions on the outside of the surface of the lung, attaching it to the pleura. This is a provision of nature, to prevent the escape of the contents of the abscess into the cavity of the membrane. The care taken by nature to prevent sudden and speedy death, which would otherwise take place, were the blood vessels not filled up by a coagulum, and flattened down upon the sides, and the equal care taken to prevent sudden death from inflammation of the pleura, occasioned by the escape of pus from any of these abscesses, is certainly very striking; but both circumstances were pointed out by Dr. STARK. The French are not aware of his existence, having, till of late, read so little of our English literature. Now, the symptoms of phthisis vary, according to the progression of these tubercles.

When the tubercles are only in a solid state, and are not united together into groups, we can learn nothing of their existence from the ear; we can only perceive their existence from the state of the patient, and therefore cannot be sure that tubercles are found. When they are sufficiently numerous to constitute groups, then, by striking that part of the chest, we hear a different sound from that which exists when nothing but air is present. You must also suppose, that when the part is softened again, and a cavity is produced, other sounds will be heard. From what I have said, respecting the morbid anatomy, you will see clearly the reason for the different symptoms I shall have to detail. You will perceive that there must be more or less pain, cough, expectoration, and, at last, hectic; and you will see that the sounds in the chest must all perfectly correspond.

DISEASES OF THE CHEST—PHTHISIS CONTINUED.

For the most part, phthisis is a very slow and insidious disease. Very often, the first symptom of anything being amiss, is an attack of hæmoptysis; a spitting of frothy, scarlet blood, which usually comes, mixed with air, from the bronchial membrane. This hæmorrhage will occur, in large or smaller quantities, several times, perhaps, before any decided symptoms set in. When these do, at length, make their appearance, you seldom have much more blood than enough to tinge the sputa.

When phthisis really begins, its first symptom is a short, hacking, tickling cough, attended with an expectoration of a little mucus. Now, this cough is by no means severe; in fact, it is often denied to exist, by the patient himself, but his friends will acknowledge its presence. Therefore, you will expect to hear the patient, when asked if he has a cough, deny it. Along with the cough, you will generally find a pain in one side or other; a kind of pleuritic stitch, only very low down; in fact, out of the boundaries of the chest. Sometimes these pains really are pleuritic, but more commonly muscular. Cold seems to aggravate the cough; the cold sheets at night, and the

colder air of the room, in the morning, as compared with the bed. Langour; indisposition to exertion; the respiration hurried, on any little exercise; flabbiness of the flesh; loss of the hair; both its strength and substance; all mark the first stage of phthisis. The weakness of the hair you will find best marked in females; they complain that it falls off, and will not keep in curl. After any exertion, you will find a flushing of the face, with feverishness, and increased frequency of the pulse. In place of, perhaps, an increase of ten in the minute by ascending a stair, you will have twenty or thirty. The calves of the legs, or the chest, are frequently found bathed in perspiration on awaking. Chilliness too is usually complained of. The patient cannot bear cold as he used. The mucous expectoration now becomes streaked with blood, although regular hæmoptysis may not have occurred, and, indeed, may not through the whole course of the disease.

The cough, debility, and dyspnœa now gradually increase, and one side is laid on more readily than the other. Perhaps the patient himself will not admit these things, but they are evident to those around him. The pains in the side too assume a more severe, and a more decidedly pleuritic character. To relieve them, you must abstract a little blood. In females, the catamenia almost invariably cease; not all at once, perhaps, but gradually. The nails of the fingers become prominent, and curved outwardly, and the ends of the fingers themselves enlarge. The eyes too become very bright, clear, and transparent; this is owing to the sclerótica taking on a more intense white. The hair continues to fall off, even in males, and becomes very scanty. The expectoration becomes greenish, or yellowish, and more abundant; it is too no longer as in health, long and stringy, but is short between the fingers. Sometimes it is very foetid, and then it sinks in water. Before, it nearly all swam. The strength now diminishes rapidly, and the sweating increases. As the disease advances, the expectoration shows curdy lumps or shreds, or sometimes you will see earthy matter; this, however, is not so common as the white shreds. The tongue sometimes remains healthy, but generally it is loaded with mucus, and is foul and yellow on the one hand, or red on the edges and tip of the other. Sometimes it is red all over, and looks like raw beef.

You will now find an increased frequency of the pulse, at least, twice a day. That is, in the middle of the day and in the evening, but decidedly in the evening: there is a great exacerbation of it, together with heat of the body, after every meal. The urine deposits a pink sediment; the pink sediment of hectic appears, and the pulse is constantly much quicker than it should be; perhaps seldom below ninety, and frequently above one hundred. The mind and appetite remain unimpaired. Persons labouring under this disease will frequently eat heartily to the very last, have a perfectly good digestion, and their mind is as alive and active as it ever was, perhaps more so. Patients generally have hope, they will not believe that they are in a dangerous state, and do not think their case is consumption. On the other hand, when people are not active, and think they are

labouring under phthisis, nine times out of ten, there is no danger whatever. A remarkable feature in this disease is, extreme hope, so that medical men, who have fallen victims to phthisis, have insisted, up to the day of their death, that they have not had ulceration of the lungs, and that they should get well. This has been observed in the intelligent, as well as in those who were most stupid. It is not a matter of judgment, but of feeling; and hope, in this disease, is exceedingly remarkable, quite characteristic of it, though it is by no means an invariable circumstance. Now and then, you will see persons despond, they are quite aware of their situation in this disease, when it is well established and confirmed, but in a much greater number of instances, there is the most lively hope; patients will not believe there is any danger. In the greater number of cases the intestines suffer very much. Perhaps at the beginning the intestines are a little dormant, but as the disease proceeds, and, especially, at the last, the intestines fall into a state of diarrhœa and the purging very frequently alternates with the sweating. The purging is so severe, that you may say it melts down the patient, and it is called colliquative purging, and the sweating is so profuse that it is called colliquative sweating. The expectoration, of course, becomes more yellow and green than before, and it also becomes more abundant; the cough becomes more severe; the legs become œdematous; and the body wastes exceedingly. The hectic flush is seen decidedly upon the cheeks and palms of the hands; and the exhaustion is such, in some cases, that the patient frequently faints; he feels, of course, exceedingly languid. The patient is, at last, confined to his bed in all cases; but in some instances, there is a great tendency to syncope and dyspnœa, from debility, so that stimulants are required; and just before death, the brain is sometimes affected, so that there is delirium frequently three or four days before death.

The progress of all these symptoms is exceedingly various; sometimes only a few weeks, but, in other cases, many years elapse before the patient sinks under the affection. I am convinced that I have seen cases where there were no symptoms of phthisis, and yet the patient has died from ulceration of the lungs, in the course of three months. I recollect one instance of this particularly. On account of some anomalous symptoms in the abdomen, I continually examined the patient. He was two or three miles from London, and on carefully examining his chest, I found that he was free from cough, and all the symptoms of phthisis generally, and from those symptoms which can only be learned by auscultation. He then began to spit something, showed signs of phthisis, and died. On the autopsy we found ulceration. All occurred in the course of two months. The public at large are aware of this state, and they call it galloping consumption. On the other hand, the disease will last very many years—that is, persons will have cough, and spit matter, yet it will not increase, but decline from time to time, and so they will go on till, at last, they expectorate a great deal, and die in the usual way. Dr. GREGORY, of Edinburgh, used to say, that he knew a case where a person was in a state of consumption for fifty years, but it is impos-

sible to say that the patient laboured under phthisis all the time; it might have been only bronchitis. But there is a very great variety as to the duration of the disease. It is generally quickest in those who have the finest skins, and are nearest to the period of puberty, or are not very much beyond that period. The disease is frequently suspended, on the other hand, by pregnancy and by suckling, and now and then it has been suspended by other diseases—by ague or insanity. These, however, are only occasional circumstances.

You will now be prepared to understand the symptoms that take place during the progress of this disease, acquirable by the ear.

At the first period of phthisis, there is nothing at all to be learned from the ear; at least I believe not, it is from the general appearance and symptoms of the patient that you suspect phthisis is present. At the onset, it is at the most only a matter of suspicion: you cannot be certain of it. You will easily see that this must be the case, when you consider that, in the first instance, the tubercles, which constitute this disease are very small and few, and a large portion of the lung perfectly healthy. It is only when a considerable portion of the lung is studded with tubercles, approximated to each other, that you can discover any change by the ear. The parts which first show any morbid change are the hollows of the clavicles. This is seen sometimes before the tubercles have softened, but when they are large, agglomerated, and numerous, you will find, on percussion, the sound unnaturally dull. The dullness of the sound is in an exact ratio with the size of the tubercular mass. Very often an examination of the clavicular regions will dissipate all doubts of the presence of tubercles. But if you find the sound under the clavicles unchanged, you should examine other parts, because now and then the deposition, instead of taking place there, occurs in other situations. In nine cases out of ten, however, you will find it where I have described. Percussion must be assisted by the stethoscope, and you will find the patient's voice resound in an unnatural manner. From a solid structure conveying sound better than a loose one, you will find the sound of the voice louder. You will not hear the voice as if speaking to you through the tube, but it is louder, and seems to echo. you will not have pectoriloquy, but *bronchopony*. But, from the large air tubes being under the clavicles, the voice is naturally louder there than elsewhere; so you must bear this in mind, and not depend on it, unless conjoined with the dull sound on percussion. You should compare the two sides, as sometimes the deposit is only on one side, and frequently it is more on one side than on the other. So that if you find an inequality in the sounds, you will suspect tubercles. This inequality is sometimes very marked, and when it exists you will be more satisfied.

Now, when a cavity exists you have pectoriloquy, but to hear this the cavity must be nearly empty. The bronchial tubes, you know, enter this cavity; and as the air enters it, you have the same state of parts as in the trachea: that is to say, there is a large cavity into which, on inspiration, the air enters; and, consequently, when the patient speaks you will have the same sound as when you put the

stethoscope over the trachea; that is to say, the voice will traverse the tube as if at the other end, just as when you put the stethoscope over a cavity in the lungs. It is to this sound that the name of *pectoriloquy* is given. Make the patient cough, and you will hear a mucous rattle like air forced through soap suds, a sort of a gurgling sound. But as the contents grow less and less viscid, as the scrofulous matter is spit up, and mucus forms more of the cavity, you will hear the sound louder and freer. Then, if you make him breathe quick and deep, you will hear the sound, as if he breathed quick with the stethoscope over the trachea. In both cases you have the air going through a large space. You have the same phenomena in simple respiration, and in making the patient speak and cough, as when you put the stethoscope over the trachea; that is to say, *pectoriloquy*. In healthy persons, however, you may have *pectoriloquy* between the clavicles, arising from the large bronchiæ going to the lungs giving out the sound of a tube. You will not then say a patient has phthisis because you hear *pectoriloquy* between the clavicles, but when you hear it in other parts of the chest, you can have no doubt about the case. In this state you do not hear the dull sound on percussion; the solid mass which produced it is gone, leaving a hollow excavation, which gives out a clear hollow sound—perhaps as in health. You must remember that *pectoriloquy* shows the existence of a large cavity, yet this alone will not distinguish the phthisical excavation, from the gangrenous or from large bronchial dilatation. Therefore, you must have recourse to the general symptoms. Gangrene you will distinguish by the great debility of the patient, and by the fœtor of the expectoration. In dilatation of the bronchial tubes, from chronic bronchitis, you want the general symptoms of phthisis. Thus we do not trust to auscultation alone, but only call it in aid of the general symptoms. No one ought to trust his ear alone. Ulceration of the lungs may be present, and yet no *pectoriloquy* be heard. If the cavity be near the surface of the chest, and the walls of the cavity very thin, and the bronchial tubes that open into it, have their mouths very small, the cavity itself may be very large, and yet no *pectoriloquy* exist. Every one has over and over again opened patients and found large cavities when no *pectoriloquy* had been present. The walls must be of a certain thickness, and the bronchial tubes opening into the cavity, must bear a certain proportion to it, to produce *pectoriloquy*. But as the lung is absorbed, you will have the *pectoriloquy* cease. Therefore, auscultation by itself is fallacious, because at one stage *pectoriloquy* may exist, and in the other, from the advance of the disease, it may cease to be heard.

In a very large excavation you will sometimes have what is called *metallic tinkling*; that is to say, a sort of silvery, ringing, metallic sound when the patient coughs, speaks, or breathes, but particularly when he coughs—a clear metallic ringing which can hardly deceive you. But the sound is not peculiar to this affection, for when the surface of the lung is ulcerated, and air escapes into the pleura, that being a very large cavity, it gives you just the same phenomenon.

When air enters into the pleura, from the presence of the air and fluid together, you have metallic tinkling; but if it so happen that there be a large cavity in the lung, that will come to the same thing, and the air and fluid entering into it, will give rise to the same sound. The cavity, however, is seldom so large as to produce it. You seldom examine a patient at that point when much information is to be derived from the ear. In the first stage of the disease there is nothing to be learned from it; and as the disease proceeds, the case is generally perfectly clear without the use of the ear; but if a set of symptoms do present themselves to the ear, they are as worthy of being observed as those which present themselves to the eye; and the mere trouble of examination can be no excuse for not observing them. Unfortunately, in the great number of instances, the case is too severe to render such examination necessary, but cases do occur where the disease is not so severe, and some will say the affection is bronchitis, and others that is phthisis. Persons are said every day, by those who do not use the ear, to be in a state of phthisis, who are not, and *vice versa*. Now, if the ear be used after a certain time, and we ascertain the existence of a cavity (because if you examine the patient late the phenomenon of pectoriloquy may have ceased), this, in conjunction with the other symptoms, will make the case clear. It is of great importance that there is pectoriloquy, for a practitioner may have said it is not phthisis at all, and he will stick to it; but if you listen, and hear pectoriloquy, you may be sure that he is wrong, and may be able to convince him of it. It is a fact, that some practitioners who have taken a predilection for other organs, particularly the liver, or the viscera of the abdomen—declare that there is no such thing as phthisis present, while it is evident enough that the patient's lungs are rotten. Now if, in such a case, you can induce a person to condescend to listen to you, and can show him the difference between the sound in health, and those in this disease, you may open his eyes, or you may bring forward such an argument as cannot be resisted. It would be unphilosophical not to know these things, and not to attend to them if they do exist.

Respecting the prognosis in this disease, when you find such a state of things as this, it must always be unfavourable. If only one part of a lung be beset by tubercular deposition, it is possible that the substance may soften, be expectorated, the part healed, the patient do very well. It is possible that you may have pectoriloquy, that you may have signs of confirmed phthisis, and yet the patient may recover; such things, however, are exceedingly rare. I doubt whether it is a very common thing for these excavations to heal at all; but it is a far more uncommon thing for the patient to get well, because in general the disease is constitutional, and if one excavation should heal, a crop of tubercles occurs in some other part, which will go through successive changes, and under these the patient will sink. When you open a patient, who has died of phthisis, you almost always find tubercles in various stages, and if you could heal one lung entirely, as it has been proposed to do, by making an opening into the chest, and causing the lung to collapse, I doubt

then whether you would do much good, because the other lung is generally beset with tubercles, which will regularly go through their stages in the same way. But I do doubt very much whether those cavities so frequently heal as has been supposed; I am quite sure, on account of the succession of tubercles, that persons rarely recover; and I doubt whether the cavities heal so often as LAENNEC thought they did.

LAENNEC says, that he has frequently seen a cicatrix in the lungs; that a cavity had existed and healed; that the sides had come together, and the parts solidified, and hardened; not as is the case with the surface of the body. The appearance spoken of by LAENNEC, as indicative of a healed cavity, is a depression on the surface of the lung, a puckering, just as in a cicatrix on the surface of the body, when there has been an abscess below. If there be merely superficial ulceration, you know that a scar is just in proportion to the depth of the ulceration on the surface of the body, and the parts immediately below the surface, so is the depth of the cicatrix and the puckering. This appearance is sometimes seen on the surface of the lung, and he says, that on cutting down on such a part, you find induration below it, of a greater or less depth. My reason for doubting this is, that you see exactly the same appearances on the liver. Almost every month, if you open many bodies, you find a puckering on the surface of the liver—a depression, with a puckering round it, and on cutting into it, you find the substance of the liver unnatural as to colour, but there is no ulceration, no suppuration; for there are no signs of there having been any matter. The peritoneal surface of the liver will fall into a state of chronic induration; here and there it will become indurated and hard, and it is commonly puckered, and then you have the appearance of so many scars. Now, the same thing will take place in the lungs. You may see them puckered, and you may see the pleura very hard there, but I cannot see that that is any reason for believing that there is a cicatrix. And you may be deceived from finding a large track of some depth down the lungs, (which should not have deceived LAENNEC) from a mere cohesion of the different tubes of the lung. It is common where there has been a slow thickening of the pleura, to say nothing of inflammation, to find the lobes glued together, and the pleura between the lobes, thick, and almost cartilaginous, and sometimes there is a puckering on the surface; and on cutting down, you find a cartilaginous hardness to some depth, but on careful examination, you find the cohesion of the different lobes. Independent of that, the pleura will fall into the same sort of disease as the peritoneum, all over the liver, and produce just the same appearances. On reading ANDRAL, I find that he has come to just the same conclusion as myself, and I have no doubt that others have done so likewise. It is said that now and then a cicatrix may be produced, but I am sure it is a rare occurrence. But sometimes people without any cicatrix, get rid of this tubercular deposition. When it has only occurred at one spot, an open cavity remains, and so they go on and live for a long time. This, however, I believe, is comparatively rare; it is so common for

tubercle after tubercle to take place in the lungs, and go through successive changes, that people generally do not live. It certainly happens sometimes, that the lining membranes of these cavities become hard, secrete a quantity of mucus, and so remain during the rest of life, no farther mischief being done, pectoriloquy being always heard, and the patient only being troubled with cough and expectoration. But this also is comparatively rare.

Now and then—but seldom—death will take place from ulceration extending outwards through the pleura. In cases of this description, the patient is generally seized with a sudden difficulty of breathing, and on striking the chest, there is a very clear sound, and the lungs become more and more collapsed. If it occur on the left side of the chest, the force of the air will be such as to drive the heart to the right side. This is called pneumo-thorax, but I shall afterwards point out, it should be termed pneumato-thorax. I shall speak of this when I come to diseases of the pleura; but now and then it is to be remembered, that ulceration is not confined to the lung itself, but the pleura becomes ulcerated, or is rendered so thin, that it gives way, and then you have air and fluid in the pleura. I shall speak of that more particularly hereafter, but I must now mention it as one of the effects of consumption. In general, nature prevents this, however near to the surface the cavity may be, by causing adhesions. You will recollect that I mentioned generally, that when a tubercle is near the surface of the lung, the pulmonary and costal pleuræ, one or both, throw out lymph and become glued together, so that ulceration may go on within, and yet neither air nor fluid can escape into the pleura. But now and then nature fails. A tubercle exists near the surface, the ulceration goes on, no adhesion takes place, a perforation is produced by the ulcer, and the phenomenon of air and fluid in the pleura occurs.

Besides those morbid appearances, and those symptoms which I have mentioned as occurring in phthisis, you will find a variety of others in different patients. Some have a very great disturbance of the digestive organs; some have tenderness of the epigastrium, tenderness of the abdomen where the small intestines lie, and also of the liver. Some have very little appetite, but a large number have an excellent one, and digest and eat well to their death. It is very common for a fistula to form by the side of the rectum, and after death it is very common to find a considerable inflammation of the mucous membrane of the intestines. It is by no means uncommon to find the intestines ulcerated—a scrofulous deposit in the mesenteric glands, and the liver more or less diseased. The French have attended very minutely to the proportionate occurrence of these different morbid affections of the parts. I believe you will find in Louis's work, a physician now living in Paris, the most accurate information on this point. It is very common to find the trachea ulcerated, to have a scrofulous deposit in various parts of the trachea, particularly about the larynx. In some instances you have soreness, a violent cough, every mark of chronic disease of the larynx; whereas in other cases, there is no hoarseness, no signs of affection

of the larynx or trachea, excepting a little inflammatory irritation from the successive secretion of mucus.

I do not know that it is worth while to state these things particularly. In phthisis, you will find very often an inflammatory state of the various parts of the abdomen; you will very often find fistulæ, organic diseases of the liver, particularly of the intestines. Now and then scrofulous tubercles are found in the brain, or at least under the pia mater, but for the most part, the head remains perfectly free.

There can be no question that the disposition to this disease is frequently constitutional, frequently hereditary. Those who are most subject to it, are usually fair persons, with light hair, sanguineous temperament, soft skin and hair, with long pointed fingers. Their flesh is flabby, not firm, and they have large pupils of the eyes. They are frequently slim and tall; but whether they are or not, this description of person is slender, with a long neck. Frequently too, such persons have been subject to hæmorrhage from the nose while young. There is also another description of persons subject to phthisis, who are not tall, but short, and who are rather swarthy, with black hair and dark eyes. These also have large pupils, and their skin is rather soft, and they have short truncated fingers and nails. Their fibre too is lax like the other, their muscles being fleshy, and these last also generally have a turned upper lip. This form of body is, of course, constitutional, and it likewise may be hereditary; therefore the disposition to phthisis, may be said to be in many constitutional and hereditary.

A certain age is more liable to this disease than any other. Scrofula is more likely to occur in the lungs between the ages of eighteen and thirty, than at any other period, in this country. When it occurs later than this, it perhaps is more frequently the result of unfavourable external circumstances upon constitutions moderately disposed to it, than of the mere intensity of the predisposition.

There can be no question that it is greatly predisposed to by bad food, bad lodging, and bad clothing. Many would escape the disease were it not for their being exposed to wet and cold, having bad lodging or clothing, and not fortified with the means of resistance to wet and cold, by good food, which keeps up a good fire within, and compensates, in a great measure, for the unfavourable state of the atmosphere. Hence the disease is much more frequent in countries which are wet and cold, than in others; and it is more frequent in countries which have wet and cold alternating with warmth, than in those which are simply cold. For example, I believe it is not so common in Russia as in many other warmer parts. Alternations of temperature, especially the union of cold and moisture with a warm temperature, seem to excite the disease most, and to be the great predisposing cause, next to the hereditary, constitutional disposition, or the want of food, clothing, and lodging. It is far less frequent in tropical than in temperate climates, indeed, in the tropics it is said that the real strumous phthisis is unknown, or is confined to the European settlers, who bring the disposition to it from unfavourable climates.

It is a disease seen more or less in almost all parts of the world, either occurring amongst the inhabitants, or amongst those who come from countries where it is very common. Some ascribe the *comparative* rarity of the disease in Russia, to the circumstance of the people having good clothing of furs, &c., and eating plenty of animal food. All the inhabitants of cold climates eat a large quantity of animal food, whilst those who inhabit warmer regions, live principally on vegetables. The diet of Italy and Russia is completely different. Then, to show the effect of clothing on the disease, it is said that in Scotland it was unknown (I suppose that is an exaggeration) before the people changed their dress from woollen to cotton. The disease is said to be the least prevalent among butchers, fishermen, and fisherwomen, or fish-fags, because these people eat plentifully of animal food.

When the predisposition is very strong, the most favourable external circumstances can scarcely keep away the disease. You will see a succession of persons in a family, brought up with every care in guarding against cold, having good food, attention paid to the slightest indisposition, good clothing, &c., and yet one after another, especially if they be females, die from this disease. On the other hand, where the disposition is not so strong, by taking great care to avoid changes of temperature, to dress very warmly, and to be well-nourished, people escape it. And if persons intermarry who have the disease in their respective families, who themselves are disposed to it, and, perhaps, afterwards die of it, one or both, the affection is almost sure to be transmitted to the offspring. You must all have seen instances of children dying, whose mother died some years before of the same disease. Where two first-cousins marry together, the predisposition, derived from this unfortunate mixture, becomes so powerful, that a very phthisical offspring is generally the result. Whoever belongs to a phthisical family should endeavour to cross the breed, by marrying some one that is not phthisical; because, although it is delightful to marry a lady delicately beautiful to all appearance, having white teeth, fine skin, soft hair, and so on, yet misery is sure to be the consequence; the disease is almost sure to begin, and the offspring perish one after another.

The immediate exciting cause of the disease is generally that of any common inflammation, any common cause of catarrh. Exposure to cold, more particularly wet and cold, especially when applied partially, and again, especially when the body is overheated, is the most common cause of the disease. Persons with a strong predisposition, catch cold from the slightest causes, and what would be mere catarrh in one person becomes in the other the commencement of phthisis. Sometimes tubercles have already existed in the lungs and these merely produce inflammation in the organ; in other cases inflammation is induced in the air tubes, and the disposition being strong, the debilitating effects of the inflammation lead to the production of the tubercles.

Whatever exhausts the body may produce this disease. When persons are predisposed to it, they will have it come on without catch-

ing cold at all but simply from over exertion of the body or over exertion of the mind. Also anxiety may be the cause of this disease in a great degree.

There can be no doubt that the depressing passions will produce the disease. I have seen a case myself where in a predisposed family an individual has become the victim of phthisis decidedly from the very time that some great source of grief occurred to him.

Powdery substances in the atmosphere have excited the disease not only when there was a strong predisposition to it, but where the powdery dry substance is of a hard nature, such as portions of metal or portions of stone, the disease is produced almost without any predisposition being discovered. There are certain occupations in which fine particles of stone are diffused through the atmosphere, and others in which fine particles of steel are so diffused, and the persons exposed to these, very frequently die of phthisis; so that in some parts of the country, where these trades prevail, few men who work at them live beyond forty, and many die much before that time.

It has been supposed that the disease will arise from contagion; but it is in foreign countries that this idea prevails; as in Languedoc, Spain, and Portugal; and the clothes of patients who have died of this complaint are there burned by the civil authorities. MORGAGIN, as everybody knows, was so frightened at the contagiousness of this disease that he never opened the body of a person who died of it: but that was evidently the result of a little nervousness rather than of his better judgment. It was mentioned as contagious by MORTON, a writer on this disease in our own country, but it was not considered so either by HIPPOCRATES or CELSUS. I do not believe that it is in the slightest degree contagious; I have, like everyone else practising medicine, seen hundreds and hundreds of cases of the disease, but I never saw an instance in which there was a shadow of probability of contagion. I have seen husbands nurse their wives, and wives their husbands, and I am quite sure that where the survivor has become phthisical the proportion has not been greater than you might expect where a disease is as prevalent as phthisis. It is not uncommon for persons to fall into it in the same family where there is a great anxiety. I hardly recollect a circumstance where the husband has died of phthisis, and the wife has fallen a victim to it immediately afterwards, where there has not been a predisposition to it before. I have seen so many hundreds of examples of the reverse that I do not think the proportion is greater than it would be if it were a matter of absolute certainty that the disease was not contagious at all.

The presence of other diseases will excite this. It is very common for this disease to come on after inflammation of the lungs, severe bronchitis, peripneumonia or pleuritis; but it is certainly very often the case that the inflammatory disease which has preceded it has been the result of a predisposition in the region of the chest to the disease at large.

Sedentary occupations of all descriptions must be unfavourable to it, because in sedentary occupations there is a want of fresh air as

well as of due exercise. Crowds too are generally collected together, and unhealthiness of all descriptions must be engendered. With some the exciting cause has been some great respiratory exertion, such as excessive public speaking, excessive reading aloud, excessive blowing of wind instruments, and some have had symptoms of phthisis which have declined after giving up some wind instrument. The disease has frequently been excited by mercury. It is very common for us to see persons who have been in the foul-wards of an hospital and undergone a considerable administration of mercury, at the end of all this fall into a state of phthisis. Excess in venery is likewise by no means an unfrequent exciting cause. I have seen many young men die of phthisis a twelvemonth after their marriage, although they had shown no signs of it before. You will sometimes have an abscess of the lungs—sometimes have an abscess of the liver, making its way, and producing an adhesion to the diaphragm, and of the latter to the lungs; this is not phthisis, but it may become the exciting cause of it.

You will form your diagnosis by the general appearance of the patient's constitution, &c., and by the general history of the disease; whether it corresponds to what I have told you of its insidious and gradual progress. If your patient belong to a consumptive family, if he be between eighteen and thirty years of age, you will of course have reason to dread tubercles. In females, you find the menses arrested, and in both sexes you have the peculiar shape of the nails and fingers' ends. But if you find hæmoptysis and continued cough, and if the stethoscope indicate a cavernous excavation, you can have no doubt.

Now, you will sometimes see patients recover who have all these symptoms, but it is very rare, and must never be looked for. It is a great blessing when it does occur, but you must not expect it.

TREATMENT.

Your treatment must be adapted to circumstances. After a certain stage you can do nothing but palliate. Medicine can, however, do much to prevent, if not cure, the disease, provided the patient can in all respects obey your injunctions. Now, to prevent phthisis, you must act so as to strengthen the system generally, by regular out of door exercise; I mean exercise without fatigue. He should have full and undisturbed rest at night; his diet should be generous with plenty of animal food of good quality. You will find malt liquor answer, in general, better than wine, as it is less stimulating. Sometimes, however, wine can be borne with advantage. All excesses of whatever kind, whether in study, exercise, or venery, should be avoided. The temperature of the body should be sedulously attended to. Many females sacrifice themselves by deficiency in clothing. This would be excusable in the poorer classes, who cannot procure proper clothing; but the richer classes do all they can to fall into consumption. They dress lightly, so that every wind shows their shape. They expose themselves with silk stockings and thin shoes, to the cold and damp; they expose themselves to heat

and colds, and when they at length get phthisis, they and their friends will not believe that late hours, long continued excitement, and an entirely artificial life, can have had anything to do with their illness. I have, and you may, save the lives of females by insisting on their wearing flannel next their skin, from the knees to the collar bones, especially if to this you add good living,—meat twice a day, and malt liquor. But one of the best things is the cold shower bath, every day. Perhaps at first they cannot bear it *cold*, but by beginning it tepid, and gradually reducing it, they may bear it cold. I know a young gentleman who had hæmoptysis, and whose brother died of phthisis. But by the use of the shower bath, begun in the summer, he recovered, and is now a hearty, robust young man. No doubt if he take care of himself and commit no excess of any description he will go on well. I do not know any means so powerful in hardening the body as the use of the cold shower bath; but it is to be remembered, with respect to hardening, that you cannot harden every one and that you may kill some in making the attempt. Some ladies, in order to strengthen themselves, will go out of doors in the most frosty weather, and by that means often injure themselves. You may make the most tender hot-house plant hardy by lowering the temperature gradually; but what will harden one will kill another, and what will not harden one at all, would be quite enough to harden another, and therefore the greatest care should be employed. Some try to harden themselves by having the windows open, and they glory in having snow on their coverlet. Some can bear it, but a great number never could bear anything of the sort. Still I am certain it is fit treatment to harden people as much as can be borne. You find, however, that some people are so disposed to an inflammatory state that it is not admissible to give them wine, beer, and meat. They may be of so inflammatory a disposition, that the utmost you can do is to clothe them well, make them guard against catching cold, and order the shower bath. Some persons are so disposed to hæmorrhage from the lungs that nothing stimulating can be allowed. There are such cases, but in the greater number of instance I know that by fortifying the constitution well, adjusting the means used to strengthen it according to its state, you may do great good.

When the predisposition is very strong it is not only requisite the patient should avoid catching cold by wearing warm clothing when he is out of doors and by avoiding all danger arising from wet feet, but the temperature of the room which he is in should be prevented from falling too low. In many cases it is necessary that the bed should be warmed, but others, not so delicate as all that, should have a fire in the room either when they go to bed or get up, once in the twenty-four hours for the purpose of thoroughly warming it. Some are so delicate that we hardly can allow them to go out during the winter and in their rooms a certain degree of artificial temperature must be maintained; but these are cases where the predisposition is extreme and the debility very great. It is also of great use where there is a strong predisposition, to send patients to a warmer climate

than our own, and one of the best places to which they can be sent is the West or East Indies, to a thoroughly warm climate. If that be too far, one of the best places is, the south of Spain or France. Many parts to which persons are sent are very objectionable. Lisbon, for example, is very cold in the winter, and both Venice and Naples have high mountains in the neighbourhood, and therefore are not good. But many cannot go even to France or Spain, and for them the warmer parts of England are the only situations left. I need not mention that parts of Cornwall and Devonshire are the most suitable; and I believe Penzance particularly so. Nearer to London one of the best places is certainly Hastings. Many persons in London have an idea that if they go to Brompton they are more protected from the disease, but I do not know if it is true. I have heard practitioners found fault with for not sending their patients to Brompton, which has a great name. But when the disease is fully formed, it does no good, but harm, to send patients away from home.—I say harm, because it is the utmost cruelty to send them from their relations, and from the comforts of home when you know they must die.—They are not able to bear the journey, and often you only hasten the catastrophe.

Now, you will very often, in your treatment, have to combat inflammation, that is to say; pleuritis, bronchitis, or peripneumonia. The stitches in the side which are so common, and for which you will deplete to about four or six ounces, perhaps to cup or blister, are inflammatory. There is, however, although you find the blood buffed, but little power in the system. The diet must be low for some days, particularly when there is or has been hæmorrhage. When these have subsided, you may have recourse to light, nutritious diet. You must not, however, fancy every pain in the side is inflammatory, for very often a mustard poultice or a blister will remove it without the bleeding, and the very low diet. If they should not remove the pain, &c., then bleeding and low diet will be necessary.

Supposing, however, that there is no inflammation to subdue, no hæmorrhage, and the patient is free from pain, and has been so for some time; then you must support him as well as you can, and lessen the irritation. It is often indispensable to give meat and malt liquor. You see many persons who are spitting up, in phthisis, better for having meat. Wine has a tendency to stimulate, and therefore should not be given, but ale will often be proper. In many cases you have to consider that the patient is just in the same state as a person who has a large abscess in the extremities, which, from pouring forth an immense quantity of fluid, has exhausted him. In that case you must allow meat and beer, in order to support the patient, and administer opium to lessen the irritation, and in phthisis the treatment must be conducted in precisely the same way.

In this state of things it is very useful, when there is no inflammation, no hæmorrhage, to give tonics, but, of all tonics, iron is the best. The use of GRIFFITH'S Mixture, which is a mixture of iron and myrrh, is well known; but the myrrh is nauseous, and after making a number of trials, I am certain the iron will do quite as well

without the myrrh. The sulphate of iron answers exceedingly well, and when you recollect how often there is a cough in the disease, out of proportion to the regular irritation that takes place, you see that the iron may relieve the cough even to a greater extent than it supports the constitution. Many cases, I mentioned before, which have been thought likely to end in phthisis, have given way to the exhibition of iron. If the sulphate purge the patient too much, or excites the pulse, the carbonate may be given, which is rather the milder form of the two. If you exhibit two or three grains of the iron thrice a day, patients will gain strength up to a certain point, and their cough will diminish. Although the relief is only temporary, yet you do good for a time, and it is your duty to lengthen life, whether it is useful to the patient or not. We are to follow the rule of saving or lengthening life, invariably, whenever it is in our power so to do. In this state of things, though the shower bath cannot be used, you may do great good and produce great comfort to the patient by sponging him well with vinegar and water, you may even check the hectic sweats by it, cold or tepid, easier than by any other method. When, before the disease is formed, persons cannot bear the cold shower bath, they can bear it tepid, and cold when the disease is fully formed, a tepid bath is frequently borne, though patients cannot bear the cold bath. Tepid sponging is very beneficial, and it is better perhaps, if vinegar be mixed with the water, at least so it is said. Many persons, when they have expectorated pus, have, from tepid sponging, come to bear cold sponging, and have found the greatest relief from it; that is to say, when hectic heat is upon them, they find it very comfortable; but as I have often said, the feelings of the patient should always be consulted.

Among the means of lessening irritation, opium is one of the very best. There are other things, I need not say, such as hyoscyamus, conium, and extract of lettuce, all of which do a portion of good, and very often are more eligible than opium, because the latter may disagree. I believe the best preparation of opium is muriate of morphia, because its unpleasant effects are, almost always, limited to constipation, and even that is often a good thing in phthisis, because there generally is a disposition to relaxation of the bowels, a quarter of a grain of muriate of morphia is equal to a grain of opium, and is more certain in its operation than any form of that drug. A solution of it is very cheap.

You may sometimes lessen the irritation by making the patient inhale various things, by having a vessel three-fourths filled with warm fluid, and making a patient inhale through it, that is, you must have two tubes, so that the air may pass through the body of the fluid. The tube which admits the air must go to the bottom of the liquor, so as to convey the atmosphere down, and the tube to be inhaled from must be fixed above the liquor. The agents which have been tried chiefly, are first, a very minute quantity of iodine, mixed with hydriodate of potassa, and, secondly, chlorine. I have seen more mitigation from the chlorine than from the iodine, but I have never seen a case cured, and I have used them perseveringly. I do not believe a cure

was ever effected by them. I have known one drop of tincture of iodine in a pint of fluid, produce much irritation, but chlorine is borne much better; the relief afforded by it is, however, only temporary. The way to use it is—mix three-fourths of a pint of water with four or five minims of saturated solution of chlorine. It is best to begin with one or two minims, and increase the quantity gradually as the patient can bear it, but if you at last arrive at a quantity which he cannot bear, you must then desist, and go back to what he can bear.

Some have recommended the exhalation of tar. Tanners as well as butchers, are said to escape the disease, and I have used the liquor from tan-pits. I have made persons inhale it, and some have found much relief, others, however, have found the smell so unpleasant that they could not go on with it. I have not used it long, but as to its curing people I think it is out of the question. I do not think any means will effect that.

Besides the great indication, when phthisis is once established, to subdue inflammation if you can, whether in the shape of pleuritis, bronchitis, or peripneumonia; besides the indication on the other hand, to support the strength by nourishing food and tonics, besides subduing irritation by narcotics, which is a third indication, you will find it necessary to attend to another indication, the removal of urgent symptoms of various kinds.

You will continually find a person sweating so profusely, that his strength is much lessened by it, and this may often be subdued by washing him all over with tepid vinegar and water, several times a day, or by the exhibition of sulphuric acid, and sometimes by superacetate of lead. You must also subdue another evacuation, which is purging. Unfortunately, the more you subdue one the more you increase the other, so that it is safe while you are diminishing the sweating by tepid ablution, to give astringents, lest diarrhoea should suddenly begin. Diarrhoea is one of the most tiresome symptoms in consumption, and often astringents and opiates do not succeed, on account of the inflammatory state of the mucous membrane, and yet the patient is too weak to enable you to apply leeches, and suffers so much that it is very painful to apply blisters. Often fomentations or poultices of bran applied to the abdomen, will be as good means as you can adopt. Frequently the largest doses of opium and the largest quantity of astringents, such as almost overload the stomach, do not check the diarrhoea. For a long time they may succeed, but at length generally the diarrhoea becomes so severe and obstinate that they do no good. It is remarkable to see what a large quantity of astringents and opium you may give with little or no benefit, and sometimes astringents and opium are decidedly the best means of checking it. Often there is ulceration of the intestines, and among the astringents, sulphate of copper answers better than any other. It has a tendency to produce sickness, but that may be subdued by prussic acid. If you exhibit sulphuric acid, it is generally necessary to guard it with laudanum, on account of its acrimonious qualities, when given by itself, tending to increase the affection of the bowels.

Certain remedies have been boasted of as able to cure consumption, but there is no reliance to be placed on any of them. You are continually asked on the propriety of Iceland moss, and things of that sort, there is no harm in them; on the contrary, they do good, so far as they are nutritious and bitter, but there is no hope of saving a patient by them. You will read that a large quantity of vinegar has cured the disease. Some persons give seven ounces of vinegar with seven ounces of water, and two ounces of refined sugar in twenty-four hours; but it has been tried fairly without success. The balsams have also been recommended, but sometimes they increase the inflammation, and heat the system much. Myrrh has been recommended by some, but I believe it does no more good than any other tonic. Sulphate of copper is strongly recommended, and does relieve the symptoms. When guarded by opium, I have seen it, I think, not only check the diarrhœa, but diminish the expectoration, it has, however, no specific virtue. Some have recommended to give a person an ague, but so many die of consumption, who have ague, and consumption is so common in aguish parts, that there is no reliance to be placed on this, and it would be very cruel to give a person an ague for the mere chance of doing good once in a thousand cases.

Little more can be done in this disease than to diminish inflammation, support the strength, lessen irritation, and subdue urgent symptoms; for, after all, persons generally die of the disease. The disease goes on progressively, and we can only lessen suffering, though no doubt the disease may be prevented by great care.

It is said by Dr. YOUNG, in his *Work on Consumption*, which is a kind of *Bibliographia-Physica*,—for he refers to every work written previously to his own, on the subject, that one-fourth of the inhabitants of Europe die of phthisis. Years ago, it was calculated that a thousand persons died of the complaint in Great Britain, annually but in Europe altogether, Dr. YOUNG says,—and I dare say he is right, that one-fourth die of this disease. The mortality in this country is greater than in Paris. Whereas one in four die of this complaint in Great Britain, one in five only die in Paris, and at Vienna, only one in six.

The symptoms of phthisis have very often been mistaken for real phthisis, when they arise from only elongation of the uvula. This is a little point worth knowing.

When the uvula is elongated—hanging from the pharynx, it sometimes produces constant cough, and this leads to a constant expectoration of mucus, and in some cases to emaciation—even to extreme emaciation. Patients, from the constant cough, have become emaciated; the tongue has become white; flying pains have taken place in the chest, with loss of appetite; pulse small and unequal, frequently pain in the larynx; constant efforts being made to expel the mucus, all of which has arisen from an elongated uvula; and therefore it is right, whenever you are consulted by a patient labouring under these symptoms, to look into the pharynx.

The disease may be remedied by snipping of the lower half of the uvula with a pair of scissors. The pain is only momentary; there

may be a little bleeding, but the operation is safe. It is very seldom that such severe symptoms will occur, I think, as to be mistaken for phthisis, but sometimes such a circumstance has taken place, very often, however, persons have a tiresome cough which has been mistaken, so that blisters have been applied to the chest, when the symptoms have arisen from nothing more than this complaint. In regard to local applications, the best are those which unite astringent with stimulating properties; but in cases where these fail, the operation of curtailing the uvula should be had recourse to.

DISEASES OF THE CHEST—ACUTE PLEURITIS.

THE next of our subjects is the affection of the pleura, and first, of the most common,—inflammation.

In this affection, we have pyrexia. If it be idiopathic—if it be consequent on some local irritation, it usually begins with shivering, and is followed by quickness of the pulse, and all the symptoms of pyrexia. The pleura is a serous membrane, and therefore in most cases you have a firm, hard pulse. Then you have always severe pain, an acute, sharp, stabbing pain, the least attempt to breathe deeply increasing it a great deal. This pain is not increased on the least pressure; you may press the integuments down upon the ribs without increasing it, and you may press moderately between the ribs; but pressing hard between them, or still harder on them, increases the pain, because, of course, you press upon the pleura. In severe cases there is very great pain, so that hardly the least pressure can be borne; and persons are unable to lie on the side, because of the pressure of the bed; but the case must be very severe for this. In fact pleuritis may generally be distinguished from rheumatism of the muscles of the chest: among other means by this,—that in the latter the least touch causes pain and soreness, such a pressure as will not affect a person labouring under pleuritis;—pressure on, or between the ribs, and at the back or front of the chest. In acute rheumatism, there is generally profuse sweating, such as there is not in pleuritis; but there is not in rheumatism that general disturbance of the constitution that there is in pleuritis. Generally, you can make out the difference very well. The pain in pleuritis is only felt at the lowest part of the chest, or, at least, low down in the chest, not in front nor at the back, but to the side. I suppose the disease has had its name, pleuritis, from the pain being observed to be situated in the side, and not from the pleura being inflamed.

The breathing is quick in this complaint, because the patient cannot make a deep inspiration, and to compensate for the want of depth he breathes more quickly. The pain is increased by coughing and speaking. Sometimes patients cannot speak at all, on account of its severity.

Generally we can make out the nature of the disease enough without listening to the chest. This is one of the best marked affections that I know. The only thing is to distinguish it from rheumatism, and, in general, if you attend to the points to which I

have just referred, you will meet with no difficulty even on that head.

The seat of the pain will sometimes vary in the course of the disease. It sometimes ceases on one side, and is felt by the patient on the other; and now and then it is said it is not felt in the part which is found inflamed after death. The pain is felt in the opposite side in life, and opposite to that in which the marks of inflammation are found after death. It is said, but I do not recollect seeing such a case myself, that sometimes no pain at all has been felt, and the practitioner has been surprised to find at the autopsy, violent marks of inflammation. Usually, the patient lies but on the opposite side; but sometimes he can lie easiest, or lie only indeed, on the affected side. The cough which attends this disease is usually dry, and not very frequent, and sometimes it is altogether absent. On listening to the affected part, you find less respiration there than in general there should be. The part does not expand much; in respiration you observe that the ribs do not move so much as in other parts of the chest that are healthy; there is less respiratory murmur, because of both, the less respiration that occurs there, and because sometimes there is considerable effusion of lymph or serum. After a time effusion takes place in a decided manner, and then you have a dull sound upon percussion, and no respiratory murmur. There is no crepitous rattle as in peripneumonia; no sonorous or sibilous rattle as in inflammation of the substance of the lungs, and therefore with this and with the acuteness of the pain, there is generally no difficulty in saying that the patient is labouring under pleuritis. Now and then you have pleuritis united with peripneumonia and bronchitis, so that you have crepitous rattle as well as acute pain, or else sonorous or sibilous rattle; but the acute pain, which does not exist in peripneumonia and bronchitis, shows that these affections are complicated, with inflammation of other parts.

If you inspect the part after death, you find nothing more than I mentioned when speaking of inflammation of serous membranes in general. Sometimes there is diffused striking redness, and an effusion of lymph, on or within the pleura, and sometimes there is serum occasionally quite clear, but for the most part turbid and of a yellow colour, with more or less flakes of lymph swimming in it.

The disease arises in almost every instance from cold and wet. It will sometimes arise from a local source of irritation as, from wounds, from effusion of substances into the pleura, from ulceration of the part; but the most common cause is cold.

The treatment is the same as for any common inflammation, bleeding, mercurializing, starving, and purging, will cure it just as easily as any other inflammation.

ÆGOPHONISM.

When there is effusion, you may always find it out to a certainty. Sometimes the patient loses his pain, he may say he is much better, but nevertheless, if you listen to the chest, you may ascertain that he

is in considerable danger. Indeed, in such cases, from the quickness or difficulty of the breathing, you may be sure something is wrong; although the patient may say he is better. But if in every case of pleuritis you examine the chest by the ear, you will know to a nicety when and to what extent effusion has occurred. In cases unattended by danger, you will remark this effusion, although a person who does ~~not use~~ his ear would not know that it existed. When the effusion is inconsiderable, you have often a very peculiar phenomenon, and that is, that when the patient speaks, the noise is a sort of nasal twang, like that of Punch—a cracked, and sometimes silvery and vibrating sound. This is heard much better generally at the back of the chest than at the front, and as long as it exists, you may be certain there is not much effusion. When it becomes considerable, there is not only a dull sound on percussion, and a want of respiration, but you do not hear the voice at all in the part, and you cannot hear the echoing through the tube; but if the effusion should decline, you will hear this peculiar sound again. It is something like the bleating of a goat, and is called œgophinism from *αἴ*, a goat, and *φωνε*, sound or voice. I think, when you have once heard this, you can never mistake it. It is a sound which few have heard, because people seldom listen to the chest in this disease, and when you do hear it, it is only in a moderate, not in a great effusion. The symptoms at large, are not severe at the moment of hearing it, and therefore, those who do not usually use their ears in this disease, do not think it worth their while to examine the chest at that period. You will hear it much the best by applying the stethoscope to the chest firmly, and your ear tightly to the stethoscope. You do not hear the voice run through the tube as in pectoriloquy, as it does not occur in, by any means, the same degree; it rarely enters the tube at all, and much less seems to pass through the tube. There is no difficulty at all in learning these signs after having heard them, and you will remember them again. LAENNEC says, that he noticed it in every case of pleuritis that he examined, for five years preceding the publication of his second edition. When the effusion is very moderate indeed, then it is not enough to produce the sound, and if it be excessive, the phenomenon cannot occur at all. He says he has observed it where there did not exist in the chest above three or four ounces of fluid. It will occur not merely when there is serum effused by the pleura, but also in common hydrothorax; and when the serous membrane pours forth pus. As it can only occur when the effusion is moderate, it is altogether a variable symptom.

This occurrence is explained by LAENNEC to be the conjoint circumstance of the compression of the bronchial tubes by fluid, and the transmission of the sound of the voice through a thin layer of fluid. If the layer be very thin, it is not enough, and indeed, a very thin portion would not be sufficient to compress the bronchial tubes—the sound must pass through a certain body of fluid. It must amount to a certain degree, both to compress the bronchial tubes and be the medium of sound; for if there be great effusion, the bronchial tubes are so compressed that there is but little air in them, and then the

sound cannot be heard. Whether LAENNEC's explanation is correct I will not pretend to say. If you change the level of the fluid, you change also the seat of the ægophonism. If the patient be upright, it will of course be over the highest part of the fluid; but if the patient be reclining, then you will hear it where the layer of fluid is the thinnest. If the patient lie down, you will not hear it where there is a great collection, but higher where the layer of fluid is thinner.

CHRONIC PLEURITIS.

Pleuritis is sometimes chronic; and where ægophonism is essentially useful. This form of the disease is over and over again mistaken for phthisis.

Sometimes the acute form of the disease degenerates into the chronic, but more frequently it is a very insidious affection, and the general symptoms so like phthisis, that he is supposed to have gradually fallen into that affection; for this chronic form of the disease is frequently attended by no pain, or only by obscure pain, and yet the patient shall have pyrexia, cough, and expectoration. He will become hectic, will waste away, the pulse will be always quick, and he will die. On opening the body you will find a great deal of pus in the pleura, while the lungs are perhaps quite sound. Often, it is true, in this chronic pleuritis the lungs labour under phthisis: very often tubercles exist in the lungs conjointly with it; but at other times there are no tubercles, or if there are, the patient may die from the pleuritis, before the tubercles have ulcerated.

You will not meet with extensive adhesions in chronic pleuritis, as you will in the acute form. In the latter, the whole length of the pleura may become adherent; but in the former, you usually meet with pus, or with very loose and unorganized effusions of lymph mixed with serum. They may be found after death, either separate or mixed with each other. This mixture of lymph, serum, and pus, may increase daily, and may so compress the lungs towards the spine, that they are sometimes said to have been altogether absorbed. This is, of course, by the same class of careless examiners as those who in former days asserted that in hydrocephalus the brain was destroyed. Sometimes you will find the affected side grow larger, and you may have in affections of the left side, the heart pushed to, and pulsating on, the right side. This is called *empyema*, and the effused fluid may be either pus or serum. Your ear will not be necessary to detect this effusion, your eye will suffice, and if you measure the side, you will find it perhaps an inch larger than the other. You may, in some cases, discover fluctuation, and sometimes you may neither have fluctuation nor any increase of size.

You will find the dull sound on percussion, and perhaps ægophony, quite enough to detect the effusion, and the dull sound, which the previous history, will satisfy you, even without the ægophony. Ægophony cannot occur when the fluid quite, or nearly fills up the cavity. In many respects ægophony resembles pectoriloquy. Both will appear and disappear in the course of the disease, and both, not

from any diminution of its intensity, but from the increase in the quantity of the fluid.

Now, you should pay great attention to forming your diagnosis, because you may, by evacuating the fluid, afford very material relief, very often prolong life, and, in some instances, perhaps, save it. Some time ago, a young child was brought to me, with its heart beating on the right side, evidently from empyema. By putting in a lancet two or three times, and so evacuating the fluid, the child recovered, and is now alive. You run no risk by operating in such cases. If you have any pointing, puncture there; if not, between the eleventh and twelfth ribs. If you have any doubt, use a needle invented by Dr. DAVIS, which may be used without danger. It has a groove, so that when plunged in, a drop or two of the fluid will appear on the end of the instrument. Thus you will have the case cleared up. Then, having ascertained that there really is an effusion, pass a small trocar and draw off about what you consider a third or a half of what is there, according to the size and age of the patient, and you may continue to draw it off, till the chest is quite empty. Dr. DAVIS, I know, used to pass in a piece of hollow bougie, and there leave it. The end of the bougie must be bent down, and fastened by straps of adhesive plaster, so that it may not find its way into the chest. Something must be put into the end of the bougie, so that the fluid may not escape too suddenly; the plug may be taken out, and a little fluid allowed to escape every day. Where the lungs were sound, the treatment has been successful. I have not seen many cases of this kind, but Dr. DAVIS, of the London Hospital, has had several, and now he can count up a considerable number where life has been entirely saved by this means.

When effusion takes place there is a dead sound on percussion, and no respiratory murmur is heard. This the natural result of the part being no longer filled with air, but with pus, which has driven it aside or upwards, and compressed it below. When a lung has become solid from air, you have this same auricular phenomenon. If the lung become solid from inflammation, you must have a dead sound on percussion as if fluid were there. No more air exists in the lung when it has become solid, than when fluid abounds in the chest, and under these circumstances you have no respiratory murmur, because the lung being solid it is unfit for its functions. But when a lung becomes solid from inflammation, it becomes so solid throughout that there is no respiratory murmur at the root of the lung for that part is equally inflamed with the rest; if, however, the dull sound of the chest, and the want of respiratory murmur arise, on the other hand, from a collection of fluid, it seldom compresses the lung, so that you cannot hear respiration at the posterior part; that is to say, about three fingers' breadth along the sides of the spine from the vertebral column. You will always find respiration, even when the lungs have been the most compressed, at the back and root of the lungs. The murmur too, is heard before the effusion is very considerable, and it is heard for a length of time under the clavicles; this is in consequence of the fluid falling by its gravity to

the lower parts of the chest. When the natural sounds cease from consolidation by inflammation, you may lose them very early under the clavicle, because the inflammatory progress may be very quick. But you will always hear the sounds under the clavicle, and at the spine in empyema.

The part of the chest where you should first listen for that peculiar phenomenon of the voice called *œgophonism*, is from about one to three fingers' breadth from the lower angle of the scapulæ to the nipple. The reason why you generally hear *œgophonism* in this place is because it is below this that the fluid generally accumulates, and if the whole lung be covered with effusion, still the thickness of the body of fluid is always less at the posterior part. You can hear it here when you can hear it nowhere else, because in this situation the fluid cannot accumulate so extensively as on other parts.

After the phenomenon has declined in the front of the chest from the great accumulation of fluid, you will still hear it at the back in that particular part.

In mentioning to you that the accumulation of the left pleura, sometimes pushed aside the heart so as to produce the extraordinary occurrence of the heart beating on the right side—the man, however worthy, having no longer his heart in the right place, I might have stated that before auscultation was known, at any rate after percussion had been introduced into the medical world, but treated with neglect in this country, I saw a case that puzzled me completely many years ago. In a case of this disease the liver was so pushed down that it was felt below the navel, and I, being young in practice (though the youngest practitioner now could not make such a mistake), had no idea of the nature of the disease, and supposed that the man had an enormously enlarged liver, and so did every one else that saw him. The man had a very enlarged abdomen, the liver could be felt as low as I have stated, but after death that organ was found quite healthy, but like the heart in other cases, it was not in the right place. A vast accumulation had taken place in the right pleura, which actually pushed down the diaphragm and consequently pushed down the liver so that the case was completely misunderstood. If auscultation had been devised the case would have been very clear. We should have found that there was no enlargement of the liver from this circumstance, that there must have been a dull sound on percussion all up the right side of the chest, and on listening for respiration on the right side, there would have been none heard; it would have been clear that something else than air occupied the right side of the chest and if the case had been observed throughout, of course there would first have been noticed *œgophonism* and afterwards it would have disappeared; so that no mistake would have been made. An operation might have been performed and the man might have recovered, but as it was he died. Everyone was quite surprised to find a large collection of fluid in the right side of the chest. By the careful use of the ear the nature of the case might have been fully cleared up, and every day, even now, cases of chronic pleuritis are mistaken for phthisis.

In this chronic form of the disease as the accumulation takes place

slowly, respiration is not so difficult as you might imagine. The other side of the chest does gradually more and more duty, and the inconvenience is felt to increase so gradually, that it is not such a source of distress to him as you would imagine. In acute pleuritis, when the effusion is very considerable respiration is necessarily quick, and there you have infinitely more difficulty of breathing, than if the same quantity of fluid were effused in a chronic form. This is nothing more than an instance of the general fact, that when any thing peculiar comes on slowly, and is increased moderately, it is not productive of half the excitements that it would be, if it come on quickly.

When the fluid has thus compressed the lung, although nature may cause its absorption, or although a medical man may cause its escape by an operation, it is possible that the lungs may never expand again; and the want of expansion may occur either from the great compression that they have undergone, or from the production of such firm adhesions, that they are effectually bound down, and from either of these circumstances the lung may never recover. LAENNEC declares, that he has uniformly found, on inspections, these extraordinary firm adhesions, and calls them fibro-cartilaginous. However, as the lungs have been known to expand again in some degree, and the chest, which was sunk in, in consequence of the compression of the lungs, has, in some degree, recovered its shape; we can hardly suppose the lungs, in every instance, to be prevented from expansion, merely by adhesions. Of course, if the lungs will not expand, the chest will become flattened on the sides by the pressure of the air; but it has been known, that the chest, after it has become flattened, has enlarged again, from the lungs having recovered their powers; and if the want of expansion in the lungs, for a great length of time, arise from fibro-cartilaginous bands, it is not likely they would ever yield, so as to allow of the expansion of the lungs again. I confess, myself, that the extreme compression of the lungs seems, to me, quite a sufficient cause for the want of their subsequent expansion, without having recourse to the supposition, that in every case where they do not expand again, there must be firm adhesions. The whole lungs are so compressed, and become so fixed, that they resemble muscles, with fibres, too minute for detection; and I may mention, that when the lungs are so compressed, the colour is either red or grey. If the lungs have been so compressed that it will not expand, and the fluid has been absorbed, or let out, and no more has formed, the ribs, on that side fall, and lie closer together than they should do; the shoulder, on that side, falls below the other, and the muscles (especially the pectoral) waste, both as to breadth and length. The muscles waste in proportion as the side become contracted, and are found, after death, to be diminished on actual admeasurement, and still more do they seem to be diminished to the naked eye. Even the spinal column at length inclines sometimes to the opposite side. Most practitioners have seen instances of persons with their ribs close together on one side, with the shoulder depressed, and spinal column bent on the other; these cases, however, were not understood, nor the general appearances of the case

itself well described, before the appearance of the first edition of LAENNEC's famous work. I recollect very well having had a person pointed out to me, as a decided proof of the power of muriate of lime in scrofula and phthisis. After suffering very long from pectoral complaints, and being put under the long exhibition of muriate of lime, the man recovered his health; but one side of the chest was plainly smaller than the other, and he was shown up to every one as having had phthisis long, and had wasted away; but all the ulcers had healed up by the power of muriate of lime. It was considered that the lung had wasted, simply by ulceration, and the contraction of the side of the chest was thought to be proof of it, because he had expectorated continually from irritation of the bronchiæ; and it was also thought that all the ulcers had been completely healed by means of the medicine. I thought then, knowing no better, that this was the case, and therefore did not attempt to deny it. Now, there is no doubt that this was a case of chronic pleuritis, in which great effusion had taken place, which effusion had afterwards been completely absorbed by the power of nature, and the lung had never been able to recover itself from its compressed condition. You will see in LAENNEC's work, a drawing of a person with one side of the trunk lower than the other, through the falling in of the chest, in the manner I have described.

LAENNEC considers that a well marked case of this description arises from pleuritis, attended by hæmorrhage into the pleural cavity. It so happens that, when the pleura is inflamed, sometimes an effusion of blood takes place into it, just as sometimes occurs from the mucous and serous membrane. I mentioned, when speaking of hæmorrhage, that these membranes will produce an effusion of blood: why, is not known, but sometimes it does happen. This sometimes occurs in the case of the pleura; blood is effused, and LAENNEC considers, that it is in such instances that this extreme compression occurs. It is not proved, however, that it always arises from hæmorrhagic pleuritis, sometimes it arises from that source, but sometimes there is no hæmorrhage in pleuritis; on the contrary, when the fluid has been let out, it has been proved to be pus alone; and yet contraction of the chest has occurred, just as when blood has been let out, mixed with the pus. If it happen more often after hæmorrhagic pleuritis (as LAENNEC says), and these dense fibro-cartilaginous bands formed by a cohesion of the fibrin in the pleura, upon the costal pleura, were always found in contraction of the chest. I should yet not regard the thickness of these bands of fibrin as the cause of the contraction, but as effects; no less than the contraction itself of the inability of the compressed lung to expand again.

Bloody fluid, just like pus, is more slowly absorbed than mere serum; the lung is irrecoverably compressed when blood is effused by the duration of the pressure, and from the slow way in which the elasticity of the chest, and the pressure of the atmosphere, resisted as it is by the structure of the chest, can bring down the side to the flattened lung,—a space probably exists for some time.

LAENNEC, indeed, seems to contradict himself; for he says that he thinks that contraction of the chest may be found equally after the disease has produced mere cellular adhesions, so that he seems in some parts of his work to give up the opinion that the lungs are always unable to recover, from the existence of the fibro cartilaginous bands. He also allows, in another part of his work, that the contraction is owing, not to the adhesions themselves, but to their slow formation. Now the slower these are formed the less likely is it for the lung to recover. He says, that if the effusion be copious the contraction is evident long before the complete absorption of the fluid, and the more rapid the absorption the less chance is there of contraction. LAENNEC himself does allow that the degree of the continuance of the compression, through the effusion, is the cause of the inability of the lung to recover itself. I have continually opened persons, in whom the lung has never recovered, and yet there have been no fibro, cartilaginous bands, and no bloody fluid, so that the long continuance of the compression appears enough to explain the inability of the lung ever to recover itself.

When the chest contracts in chronic pleuritis, it may begin at an early period of the effusion; but it may not be perceptible for months. Of course it can only be a certain degree of contraction of the chest that is observable, and those who are not in the habit of examining the patient with the eye and with the hand, and who are not in the habit of making the patient undress, and not accustomed to handle them, except to feel the pulse, will be ignorant for a long while of contraction of the chest. It may go on for a long while, and they may know nothing of it till the patient finds it out, and announces it to his medical attendant. When the chest is contracted and fluid no longer exists, but the lung is compressed, and the thorax goes down on it, there is a dull sound on percussion, just as when pleuritis existed, and sometimes you have a true fleshy sound, as if you struck the shoulder or thigh. But although this dull sound exists, respiratory murmur is heard a little. Probably at the lower parts of the chest, where the effusion occurred first, and must have ceased last, there will be no respiratory murmur, but it may be heard faintly at the upper part.

When the inflammation and effusion have ceased the walls of the chest are flattened down in proportion to the new contracted dimensions of the lung, and nature has effected a cure in the same way as a surgeon cures hydrocele—by adhesion. In hydrocele there is a serous membrane, and when it is inflamed by an injection, both fibrin and serum are poured out. The serum is at last absorbed, but the fibrin blocks up the cavity, and that is precisely the state of the parts in the cavity of the chest. When nature has effected a cure thus, the person is more or less deformed for life, but suffers little inconvenience, the general health may be excellent. LAENNEC mentions the case of a distinguished surgeon at Paris, whose chest was contracted after pleuritis, which took place in youth, and in whom percussion, when LAENNEC wrote, gave a dull sound at the lower and lateral parts of the affected side of the chest, and the respiratory mur-

mur was weaker than on the opposite side; but this surgeon had a strong voice, and lectured once or even twice a day, for an hour together, without inconvenience.

Besides the surgical treatment of such a case,—letting out the fluid—it is requisite to support the strength and lessen the irritation by means of opiates, and by using the same constitutional means that you would in the case of a large abscess.

HYDROTHORAX.

It sometimes happens that an effusion takes place in the pleura without inflammation. A quantity of serum is effused sometimes clear, sometimes more or less turbid, and of various characters, but it is not pus, nor the result of inflammation. This is called hydrothorax. When I spoke of dropsical effusion, I mentioned that effusions in a serous membrane were sometimes puriform, purulent, and bloody, and so on; and I mentioned that they arise from violent, sometimes from moderate inflammation, sometimes without apparently any at all. These were general observations. Now, the pleura is frequently in the state I have now mentioned, from inflammation, but sometimes it holds a quantity of thin fluid, where there was scarcely any inflammation at all, where it was not necessary to use antiphlogistic means, and sometimes it contains a large quantity of serum, without our being even aware that inflammation has occurred, in fact, without the least sign of inflammation. Effusion may occur in the pleura as elsewhere, without any signs, just as a person may sweat and pour forth fluid without any inflammation at all.

But a genuine case of hydrothorax is a very rare thing. You will hear some who never examine the chest during life, but open bodies after death, speak of hydrothorax as the commonest thing in the world; but when it does not arise from inflammation, hydrothorax is a rare complaint. When there is any other disease in the chest, it is common for effusion to take place; but for it to occur, except from inflammation, or some organic disease of the chest, I do not recollect half a dozen such cases.

When, however, hydrothorax occurs, of whatever disease it may be the result, the symptoms discoverable by the ear, are the same as those that occur when the fluid is puriform or purulent, and the result of decided inflammation. There is of course a dull sound on percussion, from the presence of fluid, and no respiratory murmur at the lower part, although you may still have it at the upper part (unless the chest be completely filled) below the clavicles, and you have it on each side of the spine, where the fluid does not compress the roots of the lungs.

The general symptoms are, difficulty of breathing, deficiency of urine, swelling of the legs, cough,—a sudden starting from sleep; but all these things, when they do occur, with a certain degree of effusion into the chest, are more frequently the results of other diseases of the chest than of hydrothorax. In almost all cases you open of hydrothorax, you find another disease sufficient to explain

the symptoms. Generally you find disease of the heart, or chronic disease of the lungs, and in these you have exactly the same symptoms, although the same quantity of fluid be not effused into the pleura. I have very often indeed opened patients who have been thought to die from hydrothorax, but who have died of disease of the heart. You will find cases set down as hydrothorax when the legs are swelled, the breathing so difficult that the patient is unable to lie down, and he has orthopnoea, and deficiency of urine, and there is a collection of symptoms which are pronounced to be hydrothorax; whereas if you listen to the chest, you hear respiration all over it, and if you strike it you hear the usual sound; but on listening to the heart you hear disease of that organ, or on listening to the chest, you find sonorous and sibilous rattle, showing that other diseases are present. The fluid which occurs in the chest, when it is not puriform, is generally the result of some other disease in the chest. In cases of effusion into the chest, you have the same auscultatory phenomena, not only the want of respiratory murmur, and of a hollow sound on percussion, but if the fluid be considerable, you have œgophonism. Whatever disease it is, the phenomena are the same.

Now if you can ascertain that there is hydrothorax sufficient to explain the symptoms, that there is a dull sound all over the chest on percussion, that the respiratory murmur is heard only just below the clavicle, and at the root of the lungs, and you see the general signs of dropsy, and the absence of disease of the heart, then you may presume that the above symptoms arise from a collection of fluid in the chest, especially if you hear œgophonism, and observe that the dulness of sound and want of respiratory murmur increase, reaching higher and higher, and in such a case you ought to let out the fluid. Exactly as in other cases where the presence of a collection is doubtful, you may use the needle which I spoke of in the last Lecture, to ascertain whether fluid exists there or not. It would be well to do it in every case, because it gives no pain to the patient, and is perfectly safe.

But before these measures are taken, it would be right to give the common remedies for dropsy, where there is no inflammation—diuretics. Digitalis answers well, and also squills, more especially if united with a little mercury, which seems to increase the diuretic effect. You may do a great deal of good by these remedies in all cases of chronic difficulty of breathing, whether serum is effused or not; because there is continually a great collection in the air cells, and perhaps also in the cellular membrane of the lung, which impedes respiration. When there is not real hydrothorax you continually find that diuretics are very useful, by causing an absorption of the fluid which is pressing the cellular membrane of the lungs, or filling the air cells themselves. I mentioned, when speaking of dropsy before, that diuretics answer more purposes than one.

DISEASES OF THE CHEST—PNEUMATO-THORAX.

THE pleura is sometimes distended by another fluid—air. This disease is improperly called, by LAENNEC, pneumo-thorax, because pneumo-thorax means something about lung and chest; but pneumato-thorax means something about air and chest. We have such a word as pneumatocele, meaning a swelling, produced by air; and when there is air in the thorax, it ought to be called pneumato-thorax, because *πνευμα* is the Greek for air; and, according to common analogy, we should change the genitive into *το*. We say hæmatocele, not hæmocele; therefore LAENNEC has given a wrong name to the disease. This is unimportant, and one is not disposed to dwell upon words, only, when a new term is invented, it is right to make it legitimate, according to other words. With words that have been long established we must be satisfied, and not be over nice.

Now, when air is in the pleura, it gives rise to the same effects of distention that pus or serum do; the intercostal muscles slightly swell out, and the diaphragm and liver, in the case of the right side are pushed down. But you may predict what will be the signs to the ear. The sound will not be dead, as the case of the effusion of pus or serum; but on percussion, the chest will sound hollow, though, on listening, you will have no respiratory murmur. The air that is there, is not the air of respiration, but exists internal to the lungs, and therefore gives no respiratory murmur; but there is this great difference, that on percussion of the chest, although there is no more respiratory murmur than in the abdomen, you have a fine clear, hollow sound.

You see here the importance of not trusting to either percussion or the stethoscope alone; you see that a case may occur, in which both combined, are necessary. If you only use percussion, you find nothing the matter, for it gives a fine hollow sound, perhaps a clearer sound than in health; and, again, if you use only the stethoscope, you will say, here is a lung solidified, or the pleura filled with liquid, pus, or serum. But by using both, the nature of the case is evident—you find, by the clear hollow sound, that air is there; but by the want of respiratory murmur, you see that the air has nothing to do with the lungs.

When there is air in the pleura, you have, as I have just observed, a clear sound on percussion, by which you would think all was right, but, clear as the sound is, there is no respiratory murmur. I instanced this, as a proof of the propriety of not trusting to either the stethoscope or percussion alone, and it is an excellent instance of the propriety of having recourse to both.

When I spoke of a collection of liquid in the pleura, I mentioned, that however large it might be, you would still hear respiration about three fingers' breadth from the side of the spine, that the roots of the lungs were never so compressed, but that you might hear it there; although, in extreme inflammation of the lung, the lung becomes so

solid that no respiration can be heard. Now, it is the same when the pleura becomes distended with air. When the lung is compressed by air in the pleura, still the compression is never such that respiration cannot be heard at the roots of the lungs; at least, it must be very rare the lung still resists enough to maintain its functions at the roots, and, consequently, at the sides of the spine you may hear the respiratory murmur.

There is one case, in which the auscultatory phenomena are like those which are noticed in pneumato-thorax: and that is one that I have already mentioned under the head of chronic bronchitis, when the air cells are greatly distended, and perhaps broken one into another. When the disease called, wrongly, emphysema of the lungs, takes place (I say wrongly, because emphysema is the existence of air in the cellular membrane, and in this case, it is contained in the air cells of the lungs), there is a great cavity in the lungs, filled with air; and, you will recollect, I mentioned, that there is a very clear sound on percussion, but on listening to the respiratory murmur you hear hardly anything. The cases are much alike—that is, cases where air exists in the pleura, and cases where some of the air cells are very much enlarged, and partly broken down, so that a body of air exists in the substance of the lungs, and is nearly stagnant;—does not pass and repass as it ought to do in respiration.

There is, however, a mode of distinguishing between two cases, and it is this; when air exists in the pleura, you hear no respiratory murmur at all at the front of the chest—it is stagnant; but in case of dilatation of the air cells, the air, although nearly stagnant, is never quite so; it is partially inspired and expired, and therefore you hear a faint respiratory murmur. Another mode of making the diagnosis is this,—when the case is one of the dilatation of the air cells, it is consequent upon a long-continued catarrh, or bronchitic affection; it only takes place when a disease has existed a long time, and you hear the mucous, sonorous, sibilous rattles of bronchitis, so that you may make out the nature of the case very clearly; whereas, when air exists in the pleura, it is, for the most part, a very sudden affection; there are no signs of bronchitis, and it is also generally very violent, and usually confines the patient to his bed.

HYDRO-PNEUMATO-THORAX.

A compound case sometimes happens, made up of hydro-thorax, or empyema, and pneumato-thorax.

This affection is called hydro-pneumato-thorax. It is a long word; but very expressive, it shows you at once the nature of the case,—hydro-thorax, the name for fluid, and pneumato-thorax, the name for air in the chest.

If you reflect a moment, you may, as in many other cases of affection of the chest, predict what will be the auscultatory symptoms of this disease. The air, of course, must be at the upper part of the chest, unless there be adhesions there, and the fluid at the lower part; and therefore, on percussion at the superior part, you have a clearer sound than natural; but when you strike at the inferior part,

there is a dead sound. The contrast is very great indeed, the sound above is clearer than usual; but the sound below is quite dead. You have no respiratory murmur with the stethoscope at any part of the side of the chest; the air above and the fluid below, impedes respiration, and therefore you hear no respiratory murmur, either in the one place or the other. But there is this difference between simple hydrothorax and pneumato-thorax; in the former, the sound is dead, from the presence of the fluid; in the latter the sound is clearer than natural from the presence of the air, and in air, under a compound case, there is a dead sound below, and a clear one above. And, again: if you alter the position of the patient, you alter the position of these phenomena. If the patient be sitting or standing upright, the symptoms will be what I have stated; but suppose you make him lie down, you will then find that the hollow sound, instead of being at the superior part of the chest, will be altogether at the anterior, and the dead sound, on percussion, will be quite by the side, just as you alter the relative position of the air and the fluid.

There is, however, in this case, another circumstance which takes place only in this disease, viz. that if you suddenly shake the patient you frequently hear fluctuation. You cannot hear fluctuation in emphysema alone, nor can you hear it in hydrothorax, nor in pneumato-thorax; but only in hydro-pneumato-thorax. You may hear the fluctuation with the naked ear, applied to the chest, or by the stethoscope. It is well, in all cases of this sort, to put the ear on the patient's chest, and let some one move him rather suddenly, and then you will hear fluctuation within, and the patient will be aware of it himself. Sometimes the patient has discovered this before the medical attendant has thought of the nature of the case. You will find a very remarkable case in one of the volumes of the DUBLIN TRANSACTIONS, which occurred before LAENNEC's time. The patient did not say, like the woman in Scripture, that he had spent all his substance on physicians, but he had been to all the doctors within his reach, and, moreover, had been sent to the continent; but it was all in vain, nobody knew the nature of his malady, and he discovered it at last himself. He found, that when he was sitting up, or jolted himself in any way, he heard fluctuation within his chest; he pointed it out to his medical attendant, who, for the first time, listened to his chest. Now, this phenomena is observed by HIPPOCRATES, or in some of the works ascribed to him; but, unfortunately, it is there said, it takes place only when pus exists in the chest. This is incorrect; it takes place only when there is both liquid and air in the chest; the reason of which is very plain. Those who attended to what HIPPOCRATES, or the writer of this, said, endeavoured to verify it by dissection; but found that the observation was inaccurate, and therefore it dropped to the ground, and medical men neglected to apply the ear to the chest (though HIPPOCRATES had done so) and stigmatised the plan as being mere nonsense. Unfortunately, the observation was not minute enough; the sound was ascribed solely to the existence of pus, and so the mistake was made.

There is another symptom (for which you would not be prepared) which exists in hydro-pneumato-thorax, viz. metallic tinkling. It is

exactly like the sound which, according to LAENNEC's description, is made by striking a pin against glass. It is a clear, silvery, ringing, metallic sound; a sort of metallic sound; a very beautiful sound. It was long after I began to study the auricular symptoms of these diseases of the chest, before I heard this; and till I did hear it, I mistook many a one for it. There is a click in some diseases of the chest, which I for a long time mistook for it, and which all will do when they are first studying it. When, however, I once heard the real sound, the difference was so great, that it prevented me from running the chance of mistaking it again. You will hear a click but it is not fine and silvery; but in the real metallic tinkling, the sound is very like that which is made by wetting the finger and rubbing it upon a glass vessel. It is not so loud, but it is a fine clear expansive sound.

This sound may be heard most frequently by putting your ear to the patient's chest, and then raising him suddenly upright. It is supposed that a portion of pus drops from the upper part of the chest down below, and thus produces the sound. At any rate, the way I have stated is one of the best modes of hearing it. You may hear it by this means when you cannot hear it by any other mode; but in one particular case of air existing in the pleura, you will hear it when the patient is speaking, coughing, or even breathing; and that case is where air has got into the pleura through the lungs. The air I shall presently mention; sometimes it appears it may be secreted in the pleura, sometimes it is the result of the decomposition of puriform fluid; but sometimes it enters the pleura through a rupture of the surface of the lung. If a communication be established between the lung to the pleura, whether by ulceration of a tubercle, by rupture, by gangrene of the surface of the lung, or by a wound, then you will have metallic tinkling, perhaps, when the patient is speaking, coughing, or breathing. An aperture of this description most frequently takes place from an abscess of the lung, from a tubercle; so that there is both air and pus diffused into the cavity together, and in this case there is always a clear metallic tinkling. I believe I mentioned that in the patient whose lungs I showed you a few weeks ago, there was a most beautiful metallic sound. On striking the chest, when I first saw him, there was a perfectly dead sound all over the lower part of the chest; and being told it was a case of consumption, of course I did not know the reason of it; but on listening above, I found no respiratory murmur, and the nature of the case was then clear. When he spoke, there was a fine clear ringing sound all over the chest, and the same occurred when he coughed. After a time, it altogether disappeared, and then I presume that a small cavity which had existed in the lung, forming a communication between the lung and the pleura, had healed. In a fortnight there was no ringing sound to be heard, and the patient, after going into the country, seemed a great deal better. After a time, when I saw him again, there was still no respiratory murmur to be heard over nearly the whole of the chest, and there was a dead sound on percussion, both at the inferior and superior part of the thorax. There was no more

metallic tinkling, and it was plain that what had been filled with air, was now filled with fluid only. An operation was performed, and some gallons evacuated, by daily portions. The patient, however, died, as there was too much disease to be cured.

Now, when such a hole as I have described exists, you will sometimes hear a sound, caused by the entrance and exit of the air, like the sound produced by blowing into a bottle. This is called the *amphoric buzzing*.

When the air cells are dilated, and a cavity in the lungs exists, filled with air, the symptoms in some degree resemble those produced by air in the pleura, both being large cavities; and so, if these cavities be filled with pus and air, the signs are nearly similar, and you will have the same phenomena—that is to say, metallic tinkling. If the symptoms depend on a large abscess in the lungs, containing both air and fluid; on raising the patient suddenly, a drop will descend, giving out a silvery sound. In obscure cases, you can form your diagnosis by remembering that, in abscess of the lung, you have pectoriloquy, whilst in cases where the pleura is affected, you have nothing of the kind, because there is no communication with the bronchial tubes. When the abscess in the lungs is large, and contains partly air, and partly fluid, you may sometimes perceive fluctuation, by suddenly shaking the patient.

This affection—pneumato-thorax—commonly happens suddenly, and very frequently in phthisis, in consequence of a tubercle existing close to the surface of the lung, and no adhesion forming between the opposite pleura; ulceration going on, the pulmonary pleura is, at last, eaten through. It is clear that any sudden effort of a phthisical patient may cause the rupture.

The general symptoms are those of an inflammatory attack, and if you do not listen, you will bleed and blister, under such a supposition; but striking the chest at once reveals the nature of the case, for you have a clear ringing sound, and on listening, there is no respiratory murmur.

Now, having made out the nature of the case, you ought to puncture, and let the air out. You will find a very good case by Dr. J. JOHNSON, in which he diagnosticated pneumato-thorax, in a medical practitioner, when the real state had escaped others. He had the chest opened, and the patient was immediately relieved by a gush of air. He died, it is true, afterwards, but that was of phthisis. If he had not been phthisical, I do not doubt that he would have recovered. Air, like water or pus, if effused on the left side, will push the heart to the right side. You need not puncture in slight cases, but only when the distress in breathing is great. No difference would be made if water existed with the air. It is best to make the opening large enough to let out the fluid, after the air has escaped.

The general treatment would be that of phthisis or a large abscess. These are comparatively rare cases; but it is very necessary to know them. You sometimes will meet with such a case, and if you know the nature of it, though you may not cure the patient, you may do much, you may ease him, and sometimes you may even cure him.

When there is air in the pleura only, from gangrene of the lung at that spot, and the separation of the eschar, which will occur when the gangrene is quite partial, the operation in such a case might be followed by entire success. If air were disengaged, merely from a quantity of fœtid pus underneath, the operation then might be the means of saving the patient's life, by putting an end to the dyspnoea, which would, perhaps, have killed him, and then the other disease may be made to subside. Phthisis is seldom cured, but these other affections sometimes are; therefore, except the patient have phthisis, the disease may be permanently cured.

TUBERCULAR DISEASE OF THE PLEURA.

There are other organic diseases of the pleura, upon which I will not detain you long. Sometimes the same disease attacks the pleura, which forms phthisis when it is in the lungs, and it is in a state of tubercular deposit. Occasionally, in phthisis, you will see one or both pleuræ beset with tubercles of various sizes, generally small, but sometimes large.

The deposition of tubercles may be attended with scarcely any symptoms; because phthisis may exist at the same time, and the symptoms of the greater disease may swallow up those of the smaller one. But sometimes, if the disease is alone, and of any amount, there will be all the signs of a pleuritic effusion into the chest, and it may not be easy to form a diagnosis in this case. One is sometimes surprised, in making a post mortem examination, to find tubercles in the pleura; but if the disease be considerable in any one part, you will have marks of pleuritis, inflammation, and suppuration will occur round the tubercle; and it is not easy to distinguish this inflammation from simple inflammation.

When suppuration occurs, pus may be discharged into the pleura, or without it; there may be an effusion from great secretion, either serous or purulent, into that cavity—in fact you may have pleuritis so that you may have air pass in, and all those other changes will occur which happen without tubercles, and the patient will become hectic.

The treatment of the case will wholly depend on the presence of air, fluid, signs of inflammation, and so on. It is only necessary to know that all these changes are sometimes connected with tubercles in the pleura itself, and that sometimes very minute tubercles exist there, and cause hardly any symptoms; tubercles are frequently observed there when they are seen in various other parts of the body.

Perhaps, oftener than not, when pleuritis is chronic, when the patient has a fixed pain in the pleura, of an inflammatory nature, and wastes away, it is a scrofulous affection, and is attended by this tubercular deposition. The tubercles most probably are situated in the cellular texture immediately under the serous membrane,

The pleura sometimes is much ossified; and here it is not the pleura, properly speaking, that is ossified, at least, originally, but the cellular tissue under it. A bony deposit often takes place in the

cellular membrane, in various parts of the body. But the pleura above the bone will sometimes waste away, so that you have the bare bone, on looking into the cavity of the pleura. I once met with this to a great extent in an old man, who died of ascites and liver disease, and was not aware of having disease in the pleura. I then remarked how well he could lie down, notwithstanding the fluid in his belly; and I found the pleura covering several ribs in a state of ossification.

You may have schirrhous and melanoid disease also occur in this situation; but these are comparatively rare.

DISEASES OF THE HEART—ACUTE PERICARDITIS.

THE subject to which I now pass will be, inflammation, and organic diseases of the pericardium.

In speaking of inflammation of the pericardium, I will consider that membrane, both in its loose portion, and that which is bound down to the surface of the heart. I believe some writers call both inflammation of the heart, and of that portion of the pericardium which it closely invests, carditis; but as it is all one continuous membrane, it is more correct to speak of inflammation of both portions, under the term of pericarditis, than to call one inflammation of the pericardium, and the other carditis.

Formerly this disease was not thought common, but it is very common. No one in practice can pass a month without seeing cases of this description.

This disease has been thought not very easy to make out, and like all others, sometimes may escape the attention of good practitioners, and they may be surprised, after death, to find inflammation within the pericardium.

The symptoms are, pain near the heart, which is frequently increased by pressure if you make the pressure between the ribs over the heart, so that it actually influences the pericardium. If you make a very great pressure on the ribs themselves, so as to press them down as much as possible, you often increase the pain, and also if you push up the ends of the fingers under the cartilages of the ribs, so as to drive the diaphragm against the heart with the ends of the fingers. Then the pain which is felt—not of all kinds, nor that which you occasion merely by pressure—generally darts up to the left shoulder, goes through to the back, and very often extends down the left arm. From these symptoms, and from the increased action of the heart, together with the pyrexia which exists, I think any one might treat the disease as pericarditis, and he will generally find he is right in doing so.

The use of the ear, in this disease, is rather negative than positive. I have seldom been able to hear anything musical in the sounds of the action of the heart, except that it acts too violently. In these cases there is palpitation; but on listening, you will only hear that the heart throughout is beating strongly, and perhaps all the sounds are slightly increased; but not more than will occur if you make the

heart beat violently from exercise, or from taking any stimulant. Sometimes it happens that the action of the heart occurs with a blowing sound; but that is not at all invariable, much more frequently than otherwise it does not happen, and where it does, it generally becomes more or less chronic. It is not necessary that it should take place, and it does not deserve, I think, to become one of the symptoms. So often is the sound absent, so frequently it arises from other causes than pericarditis, that I do not think this sound will occur, if it be pure pericarditis.

This disease is both acute and chronic, like most other inflammations; and when it occurs in an acute form, it far more often than not accompanies, or has been preceded by rheumatism, and it is a disease which occurs far more frequently in young persons than in any others. You will sometimes see it in or after rheumatism in infants; but generally, it attacks children from twelve to sixteen years old, and young adults and persons up to thirty. I do not remember any instance of it occurring from the suppression of rheumatism. In every case I can now recollect it has occurred, either during an attack of acute rheumatism, or some time afterwards, and not when the rheumatism has suddenly disappeared; but when it has gone slowly away, or when there has been some little degree of it still lingering in the body. I have seen rheumatism cease suddenly without seeing this disease as a consequence of it. It occurs far more frequently as a part of rheumatism than not; but it does not arise from the sudden cessation of that complaint in the joints. Sometimes after the rheumatism has ceased for three or four months, a pain has come on in the side—signs of pericarditis have taken place. The French consider this as the result of suppressed rheumatism in the joints; but I have never seen it. I have been in the habit of applying cold water to joints affected with rheumatism, when hotter than they should be, but I have never seen this result. It will sometimes occur from cold and wet, like any other inflammation; but generally, that which produces it, produces also, at the same time, rheumatism of the joints.

I believe it is wholly an English discovery; that disease of the heart is so connected with rheumatism. The observation was made cursorily at first. It was merely supposed that disease of the heart was connected with rheumatism. For that observation, we are indebted to Dr. PITCAIRN, of St. Bartholomew's Hospital; but he was diffident and could not be persuaded to publish it. Neither Dr. BAILLIE, nor any one else could persuade him to make it known through the press, but he was the first who pointed out the fact. Sir DAVID DUNDAS, a surgeon, at Richmond, afterwards published a paper on the subject, in the first volume of the MEDICO-CHIRURGICAL TRANSACTIONS. but this was many years after Dr. BAILLIE stated it in his Morbid Anatomy.

However, I think it pretty sure that disease of the heart is not connected with rheumatism, excepting so far as the effect of pericarditis is connected with rheumatism. We continually see the latter occurrence, and whenever you see a case of disease of the heart in a

young person, which has been connected with rheumatism, and the patient die, you will find marks of preceding inflammation within the pericardium; and if you inquire into the history of the case you will find that there were symptoms originally, of pericarditis. I am quite clear that the rheumatism is connected with pericarditis. I will not say it produces it, because all the symptoms result, perhaps, from the same state of the system; but the first thing connected with rheumatism is, pericarditis; and then when that has existed any time, the organic changes of the heart take place. You may easily satisfy yourself of this, by reading all the cases that have been published of diseases of the heart, as consequent upon rheumatism. You will find strong proofs of inflammation of the pericardium, and if the original history of the case be detailed, you will see strong symptoms of pericarditis. If you attend to this when you inspect the body of a person who has died of the disease, you will find marks of pericarditis; or if you inquire of a patient you will find the symptoms are those indicative of the complaint, and every day when you see cases at the onset of affection of the heart connected with rheumatism, you will see that inflammation has occurred first, and organic disease consequently to it. This is a very happy circumstance, because you may control inflammation of the pericardium, as well as inflammation of any other part; whereas, for the most part, we can only palliate organic disease of the heart; but it is pericarditis that is connected primarily with rheumatism. This is no more than you would suppose, because young people who are chiefly subject to this disease of the heart, are not subject to organic diseases, except scrofula. They are subject enough to inflammation, and we know that any inflammation will leave organic disease. The great cause of organic disease is inflammation, which is quite able to produce every organic affection. The debility produced by inflammation of another part easily makes the patient a prey of a specific affection; but it is in young subjects that this affection occurs, who are particularly liable to all inflammations, and to no organic diseases excepting scrofula.

After death from this disease, the anatomical appearances are just the same as after inflammation of any other serous membrane. There is sometimes redness, in stars, and sometimes in patches, which seldom extends very deep, even in most violent cases. The membrane does not become thickened, but a quantity of fibrin lies upon it, and serum is collected in the cavity. The fibrin is generally in very fine layers, which it forms on the pericardium, and sometimes it lies in a mass. It is usually irregular upon its surface, having minute pores, and sometimes these are very considerable: so that LAENNEC compares them to two slabs which have had butter spread on them, and then been forcibly separated. A number of knobs then appear with little hollows between them. There is often a great deal of this exudation when there is much redness.

If these exudations are great, they will sometimes glue the two portions of the pericardium together, so that they cohere to the heart, and hydrops pericardi cannot take place. Such cases have been cited as instances of the entire absence of the pericardium. There

are, perhaps, half a dozen cases on record, where no pericardium existed; but now there is no question that these cases are altogether doubtful: they were nothing more than the cohesion of the two portions of the pericardium, so that a mistake has been made. You find in one of these instances, that the cohesion had been complete; but occasionally the cohesion is partial. Sometimes these adhesions are very slight, like those in the pleura, and sometimes very tough, fleshy, and almost cartilaginous. They vary greatly. The quantity of fluid which is produced by the inflammation is seldom very much. Sometimes the fluid is turbid, yellow, containing a few flakes of lymph; but now and then it has the appearance of pus, and even real pus has been found, in large quantity, within the pericardium.

Dr. BAILLIE says, he once saw a quart of pus in the pericardium, and there was no ulceration; it was pus secreted by a serous membrane, like you frequently see it secreted by a mucous membrane.

As to the treatment of the disease where it is acute, there is nothing peculiar in it. The treatment is the same as that for active inflammation in any other part of the body, only this inflammation is seldom violently active; but it is generally moderate, and disposed to become chronic. When acute inflammation is not very intense, the best way of remedying it is, by local bleeding, and very moderate; pericarditis is best treated in that way. I think I have noticed, that pericarditis yields more readily to free local, than general bleeding; and I believe this is owing to the general principle, that if inflammation, when, though it is acute, is not very intense, is best remedied by local means.

Now, pericarditis, when acute, is seldom very active—not so active as pleuritis or peritonitis, and is disposed to fall into the chronic form. I believe that most persons who have pericarditis, do not die of it directly, but at a remoter period, and then death arises from acute, degenerating into chronic inflammation. This is the principal danger arising from pericarditis. Mercury should be given, not enjoined, and the patient restricted to low diet. These are the only observations required to be made respecting this affection; nothing more can be said than what I have advanced over and over again, respecting the treatment of inflammation in general.

DISEASES OF THE HEART—CHRONIC PERICARDITIS.

THE symptoms of this are the same, in a less degree, as the acute affection. But there are also other symptoms depending on structural disease of the heart. Generally, in the chronic affection, more or less organic disease of the heart has occurred, and on post mortem examination, you generally find that the valves or substance of the heart are diseased. If adhesions occur, they may or may not occasion inconvenience. Sometimes the two portions of the pericardium quite cohere, without any symptoms occurring referrible to them, though great inconvenience sometimes arises from partial cohesion. The heart seems to act as well as when it is in its natural state. But a case came before my notice, of a female who had disease of the

heart, and was in great agony whenever she lay on her back ; indeed, she was easier on her left side. In diseases of the heart, patients generally lie easier on the right than on the left side, and evidently because the heart is so near the ribs ; and when the patient lies on the left side, there is a considerable thump against them. But this woman had a pain about the sternum, and she could not lie on her back. On opening the body, a strong adhesion was found, so that a portion of the heart was suspended ; and when she lay on her back, the heart endeavoured to drag towards the spine, and there was a constant stretching of the parts. I know now a patient who seems to have chronic pericarditis, and cannot lie on the side without experiencing a darting, stabbing, pulling sensation, on the opposite side. I have no doubt there is adhesion of the side of the heart. I fancied, in the other case, that there was adhesion in front.

You will find in many books, an account of the signs of adhesion of the heart, and almost every day I see patients with some affection of that organ, who have been told it was adhesion. I am certain that if medical men would dissect after death, they would find many cases in which there has been complete adhesion, and no reason to ascribe the symptoms that occurred to it. A great adhesion of the heart must impede its action : but then I do not believe it will give rise to palpitation. Persons that have nervous or dyspeptic palpitation, will tell you that they have been informed that there is adhesion of the heart, and that nothing can be done for them. Medical men thought so a generation or two ago, but they do not think so now ; the common people still, however, retain the notion.

The effusion of the pericardium, however, is rarely enough to produce inconvenience ; but still such a thing may occur.

The way of discovering this would be by finding that on striking around the region of the heart, there was a dull sound to a great extent, and yet no signs of disease of the heart itself ; no preternatural sound, no increased force, no increased or diminished sound ; nothing, perhaps, occurring, but a dulness of sound to a very great extent round the region of the heart. Still, I never saw such a case, but these are the symptoms you may predict, and you find them mentioned by ANDRAL, as taking place in the cases which occurred in his practice. Probably there has sometimes been swelling of the feet, a deficiency of urine—the common symptoms of dropsy. When these things happen, you may suspect this disease ; but you will not be sure of it. When you have no inflammatory indications, give diuretics freely. Sometimes, in extreme cases, and when the patient appears dying from urgent dyspnoea, and when, too, you can satisfy yourselves of the existence of fluid near the heart, it has been proposed to tap the pericardium. I believe it has been done successfully ; but such a step should not be taken without more cautious deliberation.

Now, you may of course have the usual changes from the inflammatory action. The cellular membrane may be converted into cartilage, and you may have this nearly cased in bone. In these cases, I consider the change to be, that the cellular membrane becomes ossified, and then the muscular structure becomes absorbed. This is a

common occurrence also in cases of ossification in other parts of the body. Scrofulous deposit may occur in the pericardium, as also hydatids and schirrus; but they are rare. Blood may be poured into the pericardium, without the rupture of any vessel. Dr. BAILLIE gives an instance or two, and I myself once saw a case of the kind, in which no reason for the bleeding could be found: the parts were soft, but that was all. This effusion will occur in the stomach, intestines, the spinal canal, and in other situations of the body also.

But the heart has a membrane within, and this may be subject to various affections. It may be inflamed, but I can give you no symptoms to detect it; you can only suspect it. After death, however, you may have proof of it, but you must remember that redness may be owing to the parts being dyed by blood imbibed after death, so that you must not hastily say that inflammation has existed. You will recollect, that I before cautioned you on this subject, in inflammation of other parts of the body. You will, in fact, usually find the heart stained and red, when its texture is softened. When, however, you find fibrin effused and adherent to the lining membrane, all doubt will be removed. Another proof is, that you will find the part which is so intensely red, without a drop of blood in contact with it. Particular valves, for instance, may be red, and the cavity of the heart without a drop of blood in it.

When, too, before death, there is much dyspnœa, the mucous membrane of the stomach, intestines, and lungs, together with the right side of the heart, will become red, from engorgement. But when people die suddenly, you will sometimes find the lining membrane very red, when it cannot be from imbibition. Perhaps, in these cases, there may have been rapid pulse, irregular action of the heart; with smarting and uneasiness about the heart. If the membrane of the aorta has been affected, you will perhaps have had the smarting, &c., along the spine, following the vessels' course. When these symptoms exist, you may suspect inflammation; but I have very frequently found the appearances of redness, &c. when no symptoms had existed during life. It is, when inflamed, more commonly a chronic, than acute affection, and you may have the same transformations as in the case of the pericardium. The valves are the parts of the lining membrane the most commonly affected with disease. The valves, you know, are only foldings of this membrane. In the tricuspid and mitral valves, however, a portion of tendinous matter is added. These are the prolongations of the chordæ tendineæ. The semilunar valves, you remember, are nothing but the membrane itself, protruded and extended. As in the case of the stomach and intestines, it is not the body of the lining membrane which is usually affected, but most commonly the openings of it. And this holds good of all diseases; inflammation, schirrus, ossification, &c., ulcerations in fever, are found more frequently at the termination of the ileum than elsewhere; and then we continually see schirrus and cancer of the intestines. Instances of disease are infinitely more frequent in the cardia and pylorus, than in the rest of the parietes of the organ. The same occurs in the case of

the heart, so that you have infinitely more cases of disease of the opening of the heart, than you have in any other part of the lining membrane. This is only a general rule.

There is, however, another rule which is peculiar to the heart, namely, that the left side is more subject to all diseases, and infinitely more to redness than the right. This is a general rule with respect both to the inner lining membrane, and to the substance of the heart. There are various hypothesis to explain this; but the most probable explanation is, that one side of the heart receives blood of an arterial character, and the other, blood of a venous character. It has been thought that one side of the heart works more than the other; but in proportion, it certainly does not. Every time the left ventricle contracts, the right does the same, and so with respect to the auricles, and if the left ventricle have to send its blood farther than the right, yet the structure is much thicker than that of the right, and it is fully qualified for the duty it has to perform. I can discover no difference between them, except that one receives arterial, and the other venous blood. Whether that will explain the circumstance, I do not know; but we know, as a general rule, that arteries are more subject to all active diseases than veins, and it is very likely that the greater stimulus of the arterial blood causes other occasions of disease, when applied to act more energetically, and also causes disease to occur more readily.

CHRONIC PERICARDITIS—DISEASES OF THE VALVES,

therefore, very often is united with chronic inflammation of the internal membrane of the heart, and most frequently with chronic inflammation of the valves. This is one way in which organic disease of the heart is produced, viz. by pericarditis, which seldom exists long without being followed by a similar state of the lining membrane within. Naturally, these valves are quite fine, flexible, and translucent; but when chronically inflamed, they become yellow, opaque, and more or less rigid; they play less easily, and, at last, become quite rigid, lose their fineness, become thick, and dense. If these changes be not very severe, they give rise to no symptoms at all. If they do not prevent the passage of blood by narrowing the opening, and prevent the valve from doing its duty, no symptom, that I know, can arise, so that the best auscultator in the world may find, after death, disease of the valves, of which he had no idea before the patient died. It is only when function is impeded that any symptom can arise.

The valves will, at last, change into a cartilaginous hardness; they will become perfectly cartilaginous, and still farther, complete bone. When they undergo this change, the aperture of the part is diminished. In the case of the tricuspid valve, it may be reduced one-third or one-fourth; still, however, it generally retains its circular form. In the case of the corresponding valve, on the opposite side—the mitral valve, the circular form is still often retained; but in other cases, the opening grows up so, that it is only a chink; in-

stead of being circular it is crescent-shaped, a semilunar sort of chink; and, from the valve growing so much, a pouch is formed, leading from the auricle into the ventricle, so that when you open the left ventricle, you see, as it were, a pouch extending nearly to it, and at the end of the pouch there may be a circular opening. Sometimes, instead of a pouch, the valve is all contracted together, and you have nothing more than a chink. Sometimes the valves are almost cartilaginous, and sometimes they will become bony. When there is bone, it is deposited under the membrane—it is deposited, as in all cases of serous membranes, immediately under it; and then the membrane, from the presence of the bone, becomes very thin, till at last it will disappear, perhaps, over the bony portion, and the bone is then in contact with the blood. The valve, is very rarely wholly converted into either bone or cartilage; but the changes exist in different degrees in different spots, so that here and there will be bone, and sometimes the valves will become quite cartilaginous.

With regard to the valves between the auricles and ventricles on either side, the tricuspid on the right, and the tricuspid or mitral on the left side, when they are much diseased, instead of falling back, you have a very considerable curtain, and a generally circular or oval opening in its centre. The different parts of the valve may become filled up, and grown up, so that you have a complete membrane between the auricle and ventricle; and in the case of the mitral valve especially, we every day see it in the form of a pouch. I pointed out to you that the mitral valve is sometimes so grown up, that a mere slit remains, and it is worthy of notice, that this is not straight, but generally of a crescent form, in the shape of a bent finger, the concavity of the opening usually being towards the root of the aorta, and the convexity backwards. I believe the latter circumstance may be said to be universally the case. If you look from the auricle, you see the light through the chink in a very remarkable manner. I believe this observation was first made by Mr. ADAMS, a Surgeon, at Dublin, who wrote a very excellent paper on *DISEASES OF THE HEART*, in the *DUBLIN HOSPITAL REPORTS*. We have no specimens of the mitral valve so grown up.

With regard to disease of the other two openings of the ventricles, the opening of the right, leading into the pulmonary artery, and the left to the aorta. Disease is more frequently found in the valves of the aorta, than in those of the pulmonary artery, according to the general rule, that all diseases far more frequently affect the left side of the heart than the right. It is uncommon, indeed, for the pulmonary valves to be much diseased; but if they are, the appearances are the same as when the aortic valves are affected.

When the aortic valves are diseased, they will stand quite firm, and do not give way at all to the common pressure of the blood, so that the opening becomes diminished, and the aperture which is left in the middle of the three valves, is sometimes circular, though occasionally it is triangular.

It sometimes happens, that these valves become completely three shells of bone; but still they retain the appearance they present,

when there is only cartilage. One often finds bone about the aortic valves, more commonly there than any where else; but next in frequency, you find it on the mitral valve. You sometimes find it at the edge of the valve, sometimes at the bottom of the sac of the valves, and sometimes there is bone in the aorta, opposite the valves. The quantity of bone is sometimes very great, and occasionally you will find it in minute granules, and not very firmly adherent; so that by nobbing it with the finger, portions come off in the form of grit.

These alterations are not the only ones, however, that we observe in the valves. Occasionally we find excrescences, and these are so much like venereal warts on the genitals, that CORVISART, who has written a very good work on DISEASES OF THE HEART, actually believed them to be syphilitic. Now the appearance of warts on the genitals, does not depend on their being syphilitic, but upon their being of peculiar morbid growths; and in the greater number of cases the warts depend on mere irritation.

The excrescences are very various in their appearance. Sometimes they are variously pointed, so as exactly to resemble venereal warts, and sometimes they are very long. I opened a body last spring, in which the excrescences were so long, that they nearly reached to the apex of the heart. It was the extremest case that I ever saw. There were a number of projections from the outside of the mitral valve, but they were so exceedingly long at the roots of the aortic valves.

When the valves become so changed in various ways, they frequently shrink, both in depth and breadth. They also often shorten, so that the aperture is quite lessened; and when bone is deposited on them, they frequently become brittle, and split and crack. The point at which the two valves unite together, often separates; they are no longer bound down, and the two are thrown into one; and at that point the valves frequently more or less split. This is very common. The valve is so corrugated, that the division between the two is lost, and they split. Just the same thing takes place in the interior of an artery, when bone is deposited there, and aneurism arises from the deposition of bone, and not from the mere coat of the artery. Bone is deposited in the middle of an artery, and the coat splits. In the case of the heart, it is not an artery that is affected, and therefore an aneurism is not produced, but the part splits in the same way. Dr. BAILLIE has given an excellent representation of some of these affections.

When the aortic valves become opaque, thickened, indurated, and rugged, they sometimes corrugate so as to curl in towards the side of the aorta, and sometimes so as to turn out. There is nothing very wonderful in all this. Sometimes they do not curl, but remain rugged. A paper was read by a gentleman, at a society, announcing this as a very great discovery; but in reality, it was no discovery at all. On looking into the work of CORVISART, I recollect he states, without announcing this as anything important, that sometimes the valves are folded in, and sometimes they are folded out.

Occasionally, you will find that the induration is merely at the

roots of the valve; on rubbing each, you will find the root semi-circular and hard. These are the chief varieties of disease of the valves.

In regard to ossification, although it is seen so commonly in the aortic valves, and in the mitral valve, it is very uncommon to find the disease advancing so far on the right side of the heart; but far more so to see it proceed so far upon the valves of the pulmonary artery. Thus the aortic and mitral valves are not only far more diseased than those on the right side, but, to go to the latter situation, the tricuspid valve is far more frequently diseased than the valves of the pulmonary artery.

The changes to bone and cartilage, when they occur in young persons, are the result, in by very far the majority of cases, of mere accidental inflammation; so that without having rheumatism, catching cold, or being exposed to the causes of inflammation, the patient would never have suffered the disease. But these affections, when they occur in old persons, I think rarely can be traced to any particular attack of inflammation; they appear to be a degeneration of structure, dependent upon old age. Some parts of the body, under the influence of age, suffer transformations sooner than others; and this portion of the heart in old persons, will really become diseased, from a disposition to organic disease, and not from the result of accidental inflammation. There are instances of this change of structure in various parts of the body, which are common as individuals increase in age.

Although these parts of the lining membrane of the heart are most frequently diseased, yet you will occasionally see the lining membrane of the ventricles and auricles, but particularly the former, thickened very much, and hardened in other parts. Sometimes the lining membrane is particularly thickened where it lines the ventricles, while the valves are healthy; but this is an exception to the general rule. I am not aware of anything else worthy of being particularly mentioned as to diseases of the lining membrane of the heart.

There is, however, one little circumstance which I do not find to be much dwelt upon in books, and it is perhaps the result of inflammation. Sometimes, after chronic pericarditis, there will be a deposition of lymph under the mitral or tricuspid valve, which will quite bind it down, so as to prevent it from fulfilling its functions. I have seen several instances of this. My attention was drawn to it by Dr. J. JOHNSON, or I should not otherwise, I think, have known anything about it. After I had published a case of this description, I found it had been mentioned some years ago incidentally, in an account of the dissection of a body; but in the regular books on diseases of the heart, I do not recollect having been able to meet with any mention of the circumstance. You know that the tricuspid and mitral valves have a free floating curtain, and that if lymph be deposited between them and the heart, they may be bound down. A striking instance of the first of these affections occurred to me, and I have never met but with three or four cases. In this case, one half of the valve was

bound down, and the other half remained floating. That which was bound down, found a continuous surface into the ventricle. This was a case of common rheumatic inflammation: the woman had had rheumatism several times, and also disease of the valves and inflammation of the left ventricle.

Sometimes, but very rarely, you will see this membrane ulcerated.

After having so long troubled you with these morbid appearances, we will consider the effect these changes have on the functions of the heart. Now, the effect may be twofold; it may be to lessen the aperture through which the blood escapes, from either the auricles or ventricles; or it may prevent the valves from acting, in offering an obstruction to the blood, when it attempts to come back. Hence these changes may cause an obstruction to the blood going from the auricles to the ventricles, or from the ventricles to the pulmonary artery, or the aorta, or prevent the valves from offering an obstruction to the blood, so that it rushes back, in some degree, from the ventricles to the auricles, or from the pulmonary artery, or aorta, into the ventricles. When the aperture is lessened, and the valves grow up, then, of course, there will be an obstruction to the transit of the blood; but very often the valves become so very rugged, that they will not distend by the blood which attempts to return, and therefore can no longer perform the office of a valve. When the blood drives back again, then a portion of it does go through; but of course not the whole; because whenever the valves are indurated and rugged the opening is lessened, and therefore, at the same time that the diminution of the aperture prevents all the blood from going out that should do so, it prevents some from coming back that wishes to do so; and therefore, there is only a partial retrocession. Now the same thing will happen if the valves are bound down; but I have only seen the tricuspid ever bound down, and I do not think it possible the semilunar valves of the aorta, or pulmonary artery can be so; but if the aortic valves are corrugated, and are only half their size, then they can furnish no proper obstruction, and a quantity of blood will return. Thus, disease of the valves may prevent the blood from going in a natural course, or they may allow it in some measure to come backwards.

These occurrences could not be known formerly in the living subject; but they may be frequently detected by the ear during life. If you place the ear over the heart, or employ the stethoscope with one end placed over that organ, you will hear two sounds. The first sound which takes place, is rather long, and is immediately followed by a short sort of sound, so that you have a double sound when the heart acts. The first sound which you hear occurs at the moment of the impetus of the heart against the side, and the second directly after it. The stroke of the heart, and the first sound, occur both together, and take place; if you feel the pulse at the wrist, a little before it, at least, in most cases. Sometimes you cannot distinguish any interval between the stroke of the heart, and the pulse; but you very often can, and this, of course, proceeds from the distance of the radial artery from the heart. If you feel an artery nearer the heart, you

roots of the valve; on rubbing each, you will find the root semi-circular and hard. These are the chief varieties of disease of the valves.

In regard to ossification, although it is seen so commonly in the aortic valves, and in the mitral valve, it is very uncommon to find the disease advancing so far on the right side of the heart; but far more so to see it proceed so far upon the valves of the pulmonary artery. Thus the aortic and mitral valves are not only far more diseased than those on the right side, but, to go to the latter situation, the tricuspid valve is far more frequently diseased than the valves of the pulmonary artery.

The changes to bone and cartilage, when they occur in young persons, are the result, in by very far the majority of cases, of mere accidental inflammation; so that without having rheumatism, catching cold, or being exposed to the causes of inflammation, the patient would never have suffered the disease. But these affections, when they occur in old persons, I think rarely can be traced to any particular attack of inflammation; they appear to be a degeneration of structure, dependent upon old age. Some parts of the body, under the influence of age, suffer transformations sooner than others; and this portion of the heart in old persons, will really become diseased, from a disposition to organic disease, and not from the result of accidental inflammation. There are instances of this change of structure in various parts of the body, which are common as individuals increase in age.

Although these parts of the lining membrane of the heart are most frequently diseased, yet you will occasionally see the lining membrane of the ventricles and auricles, but particularly the former, thickened very much, and hardened in other parts. Sometimes the lining membrane is particularly thickened where it lines the ventricles, while the valves are healthy; but this is an exception to the general rule. I am not aware of anything else worthy of being particularly mentioned as to diseases of the lining membrane of the heart.

There is, however, one little circumstance which I do not find to be much dwelt upon in books, and it is perhaps the result of inflammation. Sometimes, after chronic pericarditis, there will be a deposition of lymph under the mitral or tricuspid valve, which will quite bind it down, so as to prevent it from fulfilling its functions. I have seen several instances of this. My attention was drawn to it by Dr. J. JOHNSON, or I should not otherwise, I think, have known anything about it. After I had published a case of this description, I found it had been mentioned some years ago incidentally, in an account of the dissection of a body; but in the regular books on diseases of the heart, I do not recollect having been able to meet with any mention of the circumstance. You know that the tricuspid and mitral valves have a free floating curtain, and that if lymph be deposited between them and the heart, they may be bound down. A striking instance of the first of these affections occurred to me, and I have never met but with three or four cases. In this case, one half of the valve was

bound down, and the other half remained floating. That which was bound down, found a continuous surface into the ventricle. This was a case of common rheumatic inflammation: the woman had had rheumatism several times, and also disease of the valves and inflammation of the left ventricle.

Sometimes, but very rarely, you will see this membrane ulcerated.

After having so long troubled you with these morbid appearances, we will consider the effect these changes have on the functions of the heart. Now, the effect may be twofold; it may be to lessen the aperture through which the blood escapes, from either the auricles or ventricles; or it may prevent the valves from acting, in offering an obstruction to the blood, when it attempts to come back. Hence these changes may cause an obstruction to the blood going from the auricles to the ventricles, or from the ventricles to the pulmonary artery, or the aorta, or prevent the valves from offering an obstruction to the blood, so that it rushes back, in some degree, from the ventricles to the auricles, or from the pulmonary artery, or aorta, into the ventricles. When the aperture is lessened, and the valves grow up, then, of course, there will be an obstruction to the transit of the blood; but very often the valves become so very rugged, that they will not distend by the blood which attempts to return, and therefore can no longer perform the office of a valve. When the blood drives back again, then a portion of it does go through; but of course not the whole; because whenever the valves are indurated and rugged the opening is lessened, and therefore, at the same time that the diminution of the aperture prevents all the blood from going out that should do so, it prevents some from coming back that wishes to do so; and therefore, there is only a partial retrocession. Now the same thing will happen if the valves are bound down; but I have only seen the tricuspid ever bound down, and I do not think it possible the semilunar valves of the aorta, or pulmonary artery can be so; but if the aortic valves are corrugated, and are only half their size, then they can furnish no proper obstruction, and a quantity of blood will return. Thus, disease of the valves may prevent the blood from going in a natural course, or they may allow it in some measure to come backwards.

These occurrences could not be known formerly in the living subject; but they may be frequently detected by the ear during life. If you place the ear over the heart, or employ the stethoscope with one end placed over that organ, you will hear two sounds. The first sound which takes place, is rather long, and is immediately followed by a short sort of sound, so that you have a double sound when the heart acts. The first sound which you hear occurs at the moment of the impetus of the heart against the side, and the second directly after it. The stroke of the heart, and the first sound, occur both together, and take place; if you feel the pulse at the wrist, a little before it, at least, in most cases. Sometimes you cannot distinguish any interval between the stroke of the heart, and the pulse; but you very often can, and this, of course, proceeds from the distance of the radial artery from the heart. If you feel an artery nearer the heart, you

find the interval less, if you feel the temporal artery, or aorta, there is no interval at all. You may feel the aorta at the arch, and if you put one finger on that, and one on the heart, you find the stroke at each is simultaneous. The second sound which occurs after the impulse of the heart, always takes place in health, after the pulse at the wrist; and the pulse at the wrist and the stroke of the heart occur so close together, that in common language, we may say they are simultaneous. LÆNNÆC supposed that the first sound of the heart took place from the contraction of the ventricle, and that the second occurred from the contraction of the auricle, and so he was able to foretell where an obstruction would be found after death. I will not describe those sounds which take place in health, because you have only to place a stethoscope, or your ear over your friend's chest, in the region of the heart, and you will immediately perceive them. But if there be an obstruction so that the blood cannot pass out of the left ventricle into the aorta, or from the right ventricle into the pulmonary artery freely, then generally there is an alteration of the sound, as there is alteration of the sound of a stream which passed through a narrower arch than before.

This sound occasionally resembles that produced by a pair of bellows, and is therefore called *a bellows sound*, or, in French, *bruit de soufflet*. Occasionally, it is shrill, and then it is called a rasping sound, or *bruit de râpe*. Sometimes it is like the action of a fine saw, and then it is called *bruit de scie*. It may resemble either of these. We want one word for all these sounds, and perhaps preternatural sound would be a good generic word.

If the obstruction be between one of the auricles and the corresponding ventricle, then the second sound is altered, and you hear the preternatural sound after the beat of the heart, or after the pulse at the wrist, whichever of the sounds it be. There is a difference of opinion now as to whether LÆNNÆC was right in ascribing the second sound to the contraction of the auricle, and I think he is wrong. My reason is this: on passing the stethoscope over the heart of a jackass, where the heart was laid bare, according to the experiment of Dr. HOPE, I heard the second sound when the stethoscope was placed on the ventricle. The sound clearly came from the ventricle, because others, who could see, told me the auricle did not contract. I have no doubt that the sound occurred when the blood was passing from the auricle into the ventricle, for when the ventricles have contracted, they dilate, and at that instant, the blood rushes into them. In my opinion, this is chiefly caused by the exhaustion caused by the dilatation, and not by any muscular effort of the auricles. You cannot have a vacuum in the ventricles without blood passing into them from the auricles; and I am quite sure that any obstruction to this free passage, will cause a bellows sound at the instant of the second natural sound of the heart. I have over and over again found, that when a bellows sound was heard at the moment of the heart's stroke against the side of the chest, there was some obstruction, either in the mouth of the pulmonary artery, or of the aorta; and, on the contrary, when the bellows sound is heard after the first natural sound,

there has been some obstruction in the auriculo-ventricular openings, or some affection of the arterial valves causing a return of the blood into the ventricles. Whatever, then, be the cause of the second sound, the bruit heard at the same instant, is owing to some ventricular obstruction.

LAENNEC states, that the pulse at the wrist and in the chest, and the rushing of the blood out of the ventricles, occur at the same instant. He considers the first sound to be produced by the ventricular contraction, and the second by the auricular. Whatever be the cause of the latter, I have no doubt it occurs in the *time* he states. I have, however, seen, in a living heart, the reverse of what LAENNEC states occur. But you must remember, the muscular weakness of the auricle, the greater part being merely the venous sinus, and it must, I think, be when the ventricle contracts and dilates, that the blood rushes into the auricle. The blood does not stay an instant in the ventricles, and I think the flow of the blood into the ventricles depends more on the vacuum formed by their dilatation, than on the contraction of the auricles. I have seen the auricle contract before and after the ventricle, and also five or six times as often; so that the ventricle cannot be filled by the auricular contraction. Besides, I have always succeeded in making an accurate diagnosis, by taking the sounds according to LAENNEC. When the arterial openings have been affected, the preternatural sound, be it what it may, has always been at the instant of the stroke of the heart. When the auricular ventricular openings have been the seat of disease, the sound always occurs after the pulse, showing that it is at the time of the blood leaving the auricle. I have lately had the report of a case which confirms what I have said. It was that of Dr. HOPKINS, formerly a lecturer in the Borough. He came to me with dyspnoea, œdema, and other general symptoms of a diseased heart; and on listening, I found a number of preternatural sounds, all, however, immediately after the stroke of the heart. Now, I diagnosticated at the time, "disease of the mitral valve, or imperfect action of the aortic valves." He died abroad, and on dissection, there was found an ossification of the whole circumference of the left ventriculo auricular opening, with great contraction. This case shows, like twenty or thirty more, that LAENNEC is right. He may be wrong in stating that the auricle contracts then, but he is right in saying that the blood rushes from the auricle into the ventricle at that moment. Some ascribe the sound to the ventricle dilating; but I do not know that it gives out any sound, and I think it more likely, that it is owing to the rush of blood into the ventricle.

DISEASES OF THE HEART—AUSCULTATORY SIGNS.

Why you have sometimes a bellows sound and sometimes the sound of a saw or file, is unknown. It has been supposed that the shrill sound occurs when there is ossification, but that is not proved. I should think it depends on two or three things together. If the opening be very small, and the action of the heart drive on a

large quantity of blood, I should think it would be shrill; but if the opening be small and the action of the heart not very strong, then the feeble influence of the blood will not cause the shrill sound. If the parts were soft, then you might have a shrill sound.

If has been supposed that the auricle contracts before the ventricle, because, in the case of an obstruction you see the jugular veins swell at the time of the stroke of the heart; before indeed the pulse is felt, the jugular veins will sometimes swell in a case of disease of the heart, and pulsate strongly. It is supposed that when the auricle contracts then an obstruction must occur in the veins, and the blood accumulate there. I do not, however, myself think that when the auricles contract there is any obstruction in the veins, for when they lose their blood the ventricles must be open for the blood to rush to them, and consequently there is a free passage for the blood. When the ventricle is contracting there must be a great obstruction to the blood certainly, but that moment the auricles act, and the action of the auricle cannot cause an obstruction, because there is a free course for the blood to rush into the ventricle.

You cannot be sure when you hear these peculiar sounds a moment after the pulse and after the action of the heart, that they arise from a difficulty to the transmission of the blood from the auricle, and for this reason: if the valves at the mouth of the pulmonary artery, and the aorta (and the latter is very common) do not do their duty, but let back a portion of the blood, I believe the rushing back of a small quantity of it will cause the bellows sound. You know that the moment the ventricle has acted and dilates again, the blood attempts to rush back into the vacuum, but is prevented by the three aortic valves which are filled out in a moment. But if it so happen that one is torn, or becomes corrugated and small, then a certain portion of the blood will regurgitate, and as the whole of the blood in the aorta cannot go back, but a minute portion that passes through the small opening that is left (the valves doing their duty partially), that is sufficient to cause the bellows sound. If the whole of it regurgitated, doubtless there would be no bellows sound; but if only one valve be torn, if only one valve be corrugated, or if the whole of the valves be partially corrugated, the small portion which returns causes the bellows sound. Now you will see that this must take place synchronously with the emptying of the auricles. The same cause which causes the blood to rush from the auricles, viz. the dilatation of the ventricle also attempts to make the blood rush back from the aorta and pulmonary artery into the ventricle. The blood succeeds in going from the auricles, and at the same instant tries to go from the aorta and pulmonary artery but cannot; and now we have the morbid sound. Suppose one of the auriculo-ventricular openings does not do its duty, the tricuspid valve or the mitral valve is bound down on one side, or diseased so that there is a constant aperture there, and a certain portion of the blood may therefore rush back from the ventricles into the auricles, then you have a bellows sound. When the ventricles contract from this cause, I have heard a bellows sound often at the moment of the pulse, arising, not from an obstruction

to the course of the blood out of the ventricles, but from a valve between the auricles and ventricles not acting properly, so that a small portion refluxed ; and before I knew this, in one or two cases I gave a false diagnosis, and said that there was an obstruction to the course of the blood from the ventricle, whereas it proved that there was a valve between the auricle and ventricle not doing its duty. Hence, when there is a bellows sound at the moment of the heart's action it may arise from disease of either the aortic valves or the mitral valve, and when the bellows sound occurs after the pulse it may be from the obstruction of the blood from the auricle, or from a certain portion of the blood rushing back into the ventricle. You may always say it is caused by one of these two circumstances.

In the first case in which I made a false diagnosis there was a loud bellows sound at the moment of the pulse, and I therefore concluded that the mouths of the aorta or pulmonary artery was obstructed ; but I found that there was a constant opening from the tricuspid valve being bound down, and when the ventricle contracted the blood refluxed freely into the auricle.

Now, various causes produce these diminished openings ; sometimes the valves are diseased in the way I have shown you ; the valve may be indurated, become cartilaginous, bony, and the opening may be originally diminished. The aperture is sometimes decreased by various causes. Twice I have seen the valves quite sound, and the pulmonary contracted immediately beyond the valves, so that only a very minute aperture existed for the blood to escape through. In one of these cases the disease arose, as it so often does in young people, from violent pericarditis. The pericarditis had gone on to produce cartilage under the pericardium. and the cartilage had dipped down so much into the substance of the heart that it pressed on the origin of the pulmonary artery, and there produced great obstruction. In this case I heard a bellows sound at the moment of the pulse on the right side of the heart's region in the situation of the right ventricle ; and in the hospital books it was written down as "difficulty to the transmission of the blood from the right ventricle to the pulmonary artery. I did not know what the cause was, but a mass of cartilage existed in the substance of the heart, extending from the inner surface of the pericardium down into the substance of the heart, where it greatly lessened the aperture of the pulmonary artery. I have never met but with two cases of obstruction of the pulmonary artery. It is exceedingly rare to find disease of the pulmonary artery ; in fact, all diseases are much commoner on the left than on the right side of the heart ; in the second case the diagnosis was equally correct. There was a large bellows sound on the right side of the heart at the moment of the pulse ; and after death the pulmonary artery was very much diminished, so that the blood could not escape from the ventricle. The patient was a young woman, and died from this affection. I should think it was a case of malformation, because I perceived no sign of disease of the heart. She was dropsical all her life, and at last there were signs of great obstruction ; the older she grew the more the heart grew, but the opening

never enlarged ; there were more and more ill effects the longer she lived. These cases are very rare indeed. If by chance anything press on the aorta or pulmonary artery, you have this bellows sound. Although there be no disease of the vessel itself, nor the valves diseased, no disease of the opening, yet extreme pressure will have the same effect. I remember seeing a case in which a piece of bone being between the aorta and the pulmonary artery pressed on both, there was a bellows sound at the time of the pulse, on both sides of the chest.

You may, however, have a preternatural sound while the opening remains quite natural, quite as it should be ; the cavity however, behind the opening is very much dilated, and in that way the opening is relatively small, though not absolutely. Nature has given an exact proportion between the size of the openings and the cavities ; and the natural dimensions allow the blood to go through in the easiest manner, and with the least noise. Thus the natural proportions may be destroyed in two ways : the openings may remain the same and the cavities become too large, or the cavities may remain the same and the openings become too small ; in the first case the openings are no longer large enough for the cavities, and in either case you must have the bellows sound. You must not be astonished, therefore, after a bellows sound, to find the openings in a natural state, because the cavity may be too large ; nay, when this occurs the bellows sound is sometimes caused by the least alteration in the position of the heart, and by position the free course of the blood from the left ventricle may be destroyed. I once had a very curious case of this kind. A woman had ascites, and I found a bellows sound in the heart ; I wished to know the cause of the ascites, and also whether organic disease existed. There was a bellows sound at the moment of the pulse. She was tapped, and as soon as the operation was performed the bellows sound went away. The water accumulated again, and the bellows sound returned with it. Now in this case the opening was found healthy after death, but the left ventricle was dilated. It seemed to me that the ascent of the diaphragm by the water slightly tilted the heart, prevented it from being in quite its natural situation, and caused the apex to rise in that way that the passage of the blood into the aorta would be a little impeded. If the position of the heart be altered, if the apex be lifted up, no doubt the blood will experience a little difficulty in going into the aorta. In this case it was quite proved that it arose from some such circumstance, because when the heart was pushed up through the diaphragm by water, there was a bellows sound ; and when the diaphragm was let down, the heart going with it, the bellows sound ceased. In any case in which you hear a bellows sound at the moment of the pulse, the abdominal viscera may cause pressure. When a person is upright, and the bellows sound occurs synchronously with the stroke of the heart ; if you make him lie flat, from the abdominal viscera pressing up, and the apex becoming slightly tilted, you find the bellows sound increased. When a person labouring under disease of the heart has been standing upright I have often not heard the sound, but on making him lie down I have heard it distinctly.

Almost always when the bellows sound occurs at the stroke of the heart, arising from the obstruction to the blood in passing from the left ventricle, if you make the patient lie down you hear it more strongly, and therefore in these cases you should listen to the sound in both ways. I presume the circumstance arises from the same cause when the bellows sound is heard in the case of the aorta. The abdominal viscera, when a person lies down, press against the diaphragm and alter the position of the heart, so that the blood cannot so easily escape from the aorta. When there is difficulty of breathing patients wish to sit up, and then the heart becomes more vertical. In hypertrophy of the heart you often hear a bellows sound where there is no great dilatation. If it so happen that the substance of the heart is much thickened, that the columnæ carneæ are much thickened near the mouth of the aorta, towards the semilunar valves, the increase of the flesh of the heart will cause a little obstruction, so that you have a bellows sound. Often, therefore, in opening bodies where there has been a bellows sound you find some other cause than disease of the opening; you may find something pressing the outside of the aorta; you may find the substance of the heart increased—you may find the heart out of its due position—you may find the cavity behind the opening so much dilated that the latter, although of its natural size is not big enough for the enlarged cavity that forces its blood through it.

It seems that this is occasionally only a temporary disease dependent on spasm or imitation. Sometimes there would appear to be a spasm near the opening, for a person will have a bellows sound one day, and not another. They say that hysterical women sometimes have this bellows sound, and they have spasmodic affections of various parts.

Frequently you diminish, and even quite remove, the bellows sound by venesection. If you lessen the quantity of blood that has to go through the aperture there will be less obstruction felt, and therefore by bleeding to a certain extent you diminish, or it may be, wholly remove the bellows sound; sometimes you hear this sound in inflammation of the heart, and as you subdue the inflammation, it may never return. In this case the parts may be thrown into a spasmodic state, just as in the case of the urethra; when that is inflamed, you know that a spasmodic stricture may take place, so that no water can pass, and on bleeding the patient, the affection is removed, so I conceive it may happen with the opening of the heart.

Again, you will hear a bellows sound if you bleed a patient too much—you may bleed a patient till you get a sharp pulse, and then you may think that inflammation is present, though the patient be blanched like wax; now, I have been told by many, that in this case a bellows sound has been heard.

I presume that in this case the bellows sound arises from the violent action of the heart; it attempts to drive away the blood faster than it can go with ease; there may, however, be a bellows sound from great plethora alone, there is such fulness of the heart .

that the blood cannot escape through the opening; and, on the other hand, you may have such a rapid action of the heart, that more is attempted to be forced through it than the heart will allow.

In listening to the heart's sounds, use the stethoscope without the plug, and you will hear the sounds far louder. I am quite sure of this; however, you will use it both with and without the plug, for with it you have a large surface for the heart to strike against. There are other symptoms than these auscultatory ones. In difficulty of transmission, the cavity is disposed to dilate, and the blood not going out with ease, accumulates and favours the dilatation; this is a common circumstance. The auricles however, from their greater thinness are more easily dilated than the ventricles; sometimes in case of obstruction at the mouth of the aorta you see the left ventricle dilated, but more frequently the auricle. In disease of the mitral valve you do not expect dilatation of the left ventricle, because it is beyond the obstruction, but you have dilatation of the left auricle or the right auricle, or the right ventricle, because they are behind the obstruction; when the obstruction is on the left side of the heart you may have the lungs much affected. Apoplexy of the lungs has been known to occur in cases of mitral disease; mitral disease is often met with after death without having been suspected, but always with fulness of the lungs; perhaps, however, not amounting to pulmonary apoplexy; you will meet with venous congestion generally; if the blood do not escape from pulmonary veins easily, it accumulates in the lungs, and therefore it will not pass freely out at the pulmonary artery, then the right ventricle suffers, and the venous system generally; the consequence of this is great fulness of the veins of the neck and head, and of the veins of the body generally, followed by anasarca, and then from the cerebral congestion you will have apoplectic symptoms with lividity and blueness of the lips, nose, and whole countenance; the effusion will frequently occur first about the eyes, in the lower eyelid particularly. Indeed many view this a diagnostic of diseased heart; when, however, the course of the blood in the chest is obstructed, you find a puffiness of the lower eyelid.

Besides these there are symptoms in the heart itself. There is palpitation, a great sense of fainting, and a great difficulty of breathing, particularly on motion; in this and all other diseases of the heart the lungs are very much disposed to fall into a state of chronic bronchitis, so that the patient not only coughs but expectorates; perhaps expectorates blood, and the difficulty of breathing becomes extreme. The quantity of urine is diminished, then frequently a great accumulation of blood occurs in the liver as well as in other parts, and at length there is effusion not only into the pleura, on each side, but into the peritoneum, so that at last you have not only œdema but perhaps general dropsy.

All preternatural sounds are heard more frequently on the left than on the right, because all diseases of the heart are much more common in that situation; now in the vast majority of cases you will hear these sounds exactly at the moment of the stroke of the

heart, in fact it is very rare to hear a preternatural sound at the time the auricles let their blood into the ventricles ; all cases of bellows sound in which no real constriction existed, occur at the stroke of the heart, and when it occurs from a temporary cause it is at the same period probably from some obstruction of the mouth of the aorta, by far the most frequent source of the bellows sound then is in the aperture leading from the left ventricle into the aorta.

In general the bellows sound, when it arises from an obstruction of the mouth of the ventricle, is heard in the lower part of the cardiac region, in the situation of the ventricle, whereas, when it proceeds from a diminution of the opening of one of the auricles it is heard at the upper part. I have heard it frequently in the right axilla when the heart was not at all enlarged, but it is always loudest in the immediate seat of its cause.

You will sometimes hear a double sound—one at the stroke of the heart, and then another immediately after it, like something falling one way and then falling back again directly. In these cases there is obstruction to the passage of the blood, so that you have first the bellows sound, and then, from reflux of the blood, a second bellows sound. This is by no means rare, though not very common. When the mitral valve is greatly contracted there is great obstruction, and some of the blood always comes back, producing a double bellows sound ; this is also the case in the aortic valves.—You will remember that in the bellows sound which is heard at the stroke of the heart it is loudest, and sometimes only to be perceived in a recumbent position ; you will hear, however, variations in this respect according to the force of the heart ; sometimes the pulse is very irregular, so that you have a strong thump, then a weak one, and then several strong ones. Now in these cases, when the heart acts moderately, it gives short strokes, so that the blood goes through the openings pretty well, but when it acts violently a torrent of blood, is driven against the opening, a great obstruction is felt, and you have a loud bellows sound ; if the parts be not very rigid the blood may force its way and the obstruction will not be much felt, but if the parts will not give way, the greater the impulse, the more is the obstruction felt ; now there is also frequently with the bellows sound, a gentle vibration like that which you feel on placing your hand on a cat's back when she is purring, it is called the purring thrill ; it is always conjoined with the bellows sound, and is nothing more than a jar given to the heart by the blood attempting to pass through the obstructed opening ; it is not very often observed, but only now and then.

The heart's action varies both in force and frequency. It has been thought that this indicated the want of a free opening ; but you will find that intermissions of the pulse, and irregularity both as to force and frequency, will occur when there is no obstruction, and I do not know the particular state of the heart which gives rise to these variations. You will continually see this in old persons who have never had disease of the heart, it is more

frequently observed when there is an obstruction of the mitral valve, but it is by no means a necessary consequence of it.

The tendency of an obstruction on the left side of the heart is to produce a small pulse. The heart may act very violently, but if there be obstruction at the mouth of the aorta, the pulse must be small; if the mitral valve be obstructed, so little blood can escape from the auricle to the ventricle that the latter has but a small charge to pour forth; an obstruction between the left auricle and ventricle will cause smallness of the pulse just as easily as the obstruction of the mouth of the aorta, but although it is the effect of these circumstances, it is not their effect alone. Diminution of the cavity of the left ventricle is, among many others, one of the causes of small pulse; if the left ventricle becomes hypertrophied, and the cavity lessened, there is so little blood poured into the arteries that you have a small pulse; the heart may beat very violently, but there is so little to escape that you have a small pulse.

There are no symptoms, excepting those of the ear, to indicate whether there is any obstruction at all; but everything must be taken into consideration or you will be much deceived. The bellows sound must be heard constantly for you to think that there is organic disease of the heart, and even then you ought not to be satisfied unless you find other symptoms, as enlargement of the heart, dulness of sound, to a great extent, anasarca, great distention of the veins, &c. It is absurd to depend on any one of the sounds of the ear, useful and important as they are, and to neglect observing all the general symptoms which are noticed in the ordinary way.

It has been thought that when there was obstruction on the right side of the heart the jugular veins were more distended and the obstruction in the venous system more evidently shown than when it occurred on the right. This is true up to a certain point; but you must remember that an obstruction on the left side of the heart must produce the same effects; after a certain time there will be great congestion in the lungs, and in consequence of that there must be an obstruction to the blood passing on the right side of the heart, then a distention of all the veins, and dropsy. You cannot depend on these symptoms alone; when you see the veins of the neck distended, that itself will not justify you in saying that the obstruction is seated on the right side of the heart; it may arise from an obstruction there, but there may be a real organic obstruction on the left side; however, when the obstruction occurs on the right side, the breathing is much easier than when it takes place on the left side, the blood is not at all impeded in its progress through the lungs, the obstruction exists before it goes there, but when the obstruction is on the left side it causes great dyspnoea on account of its producing congestion of the lungs. But great reliance cannot be placed in this, because in structural disease of the heart the lungs are much disposed to become diseased also. From their contiguity to the affection of the heart they are much disposed to fall into chronic bronchitis, and in that case you have all the signs of difficulty of

breathing, and congestion of the blood; still, if there be no affection of the lungs, you will not have dyspnoea when the right side of the heart alone is obstructed; whereas, you must expect it if the obstruction be on the left side.

DISEASES OF THE SUBSTANCE OF THE HEART—CARDITIS.

THE substance of the heart is now and then, but very rarely, the subject of acute inflammation.

The symptoms of this disease would be very similar to those of pericarditis, I hardly think it can exist except joined with it.—Extreme faintness, fits indeed of syncope, have been observed in this; this sometimes, but uncommonly, exists in pericarditis. In the case mentioned by Mr. STANLEY, in the seventh volume of *MEDICO, CHIRURGICAL TRANSACTIONS*, pericarditis was present.

Now, after death in these cases, the heart has been found soft and black with congestion. In Mr. STANLEY's case, the disease had proceeded even to suppuration, so that there were little collections of pus which studded the heart.

HYPERTROPHY.

Though the disease I have just described is very rare, and must be treated like pericarditis, yet chronic inflammation of the heart is common. I think that hypertrophy is an inflammatory disease generally, because it is a very common effect of pericarditis; an over-nourished thickened heart has been found under the microscope to be redder than natural; and when the fibres were steeped in distilled water, they imparted a greater redness to it than a similar quantity of healthy fibre. In hypertrophy the coronary arteries are commonly enlarged; excessive nourishment implies an excessive quantity of blood going to the part—an excessive action throughout, and therefore one must suppose that it is more or less of an inflammatory nature. Sometimes this morbid nourishment, thickening and increased substance of the heart, neither arises from nor follows pericarditis, but supervenes on an obstruction to the exit of the blood from the particular part which is so overgrown. If any one, or any particular set of the muscles be particularly used, it grows and increases in size; so if the heart, from an obstruction at the mouth of the aorta, is forced to make very great efforts to overcome the obstruction, constant palpitation results, and hypertrophy at last takes place. This is one, by no means the general cause of hypertrophy; sometimes an obstruction is not followed by any increased substance—the heart makes what effort it can, but does not become hypertrophied.

The left ventricle is most commonly hypertrophied, over-nourished. This agrees with the general fact of disease being more frequent on the left than on the right side, but the left ventricle is far more frequently hypertrophied than the left auricle.

When the left ventricle is hypertrophied, it is generally firmer and redder than natural, but the dimensions of the cavity are very various.

If the walls be hypertrophied, thicker than they should be, and the size of the cavity remains the same, it is simple hypertrophy; sometimes the cavity is decreased by the walls of the ventricle having thickened inwards. This is called concentric hypertrophy; sometimes, however, the cavity is enlarged, so that while the heart is over-nourished, the cavities are dilated. This is eccentric hypertrophy.

Now you will perceive on a moment's reflection, that there may be great addition to the substance of the heart, and yet the organ may be neither harder nor thicker than natural, because it may be a case of eccentric hypertrophy. If the cavity be greatly dilated, all the additional substance may be only just enough to counterbalance the thinness, which would otherwise occur; if a part be not over-nourished at all, it grows thinner and thinner, in proportion to the dilatation; but if in this case a great addition of substance is made to it, it may get no thinner. Thus you perceive that a case may occur, in which the walls of the heart are greatly dilated, and that the additional substance may be only just enough to counterbalance the dilatation, and therefore you may not be wrong after having given a diagnosis that the patient has hypertrophy, if you find after death no thickening of the heart.

The heart sometimes attains great thickness in this disease; sometimes it is even treble its natural thickness. It is said that the natural thickness of the left ventricle is, in an adult, half an inch; but this varies. I have not noticed the remark anywhere, but I think we ought not to consider, that a heart which is hypertrophied, has been thickened during life, merely from observing that the walls are thicker than they should be after death; and because, if a part contracts very powerfully at the time of death, and remains in a state of contraction afterwards, of course it will appear thicker. You know that when any muscle contracts, what it loses in length it gains in circumference. So if the heart contracts very violently, of course it will become thicker, and that thickness may be independent of any additional substance; but in proportion as it looks thicker, its internal size ought to be less; and therefore, when a heart is very thick, and externally small, it need not be considered hypertrophied. In order to say that a heart is hypertrophied, it ought to be the natural internal size, but thicker than natural; or you may be continually deceived.

With respect to the left ventricle, I had better speak of that in particular; first, because of the frequency of hypertrophy in that part. In simple and eccentric hypertrophy, the deposition is most frequent about the base of the heart. In concentric hypertrophy, the addition is the same throughout; the cavity is lessened in all directions. When hypertrophy exists in the left ventricle, you will find the septum particularly thickened, and the columnæ carnæ will be double their natural size.

If there be any dilatation, as well as hypertrophy, the right ventricle (remaining healthy) is quite small and rather behind the left ventricle, not reaching perhaps more than half way down the heart.

A case must not be set down immediately as hypertrophy, on

account of the disproportion between the ventricles; because the walls of the left are far thicker than those of the right ventricle naturally. It is well to remember also, the usual size of the heart, which has generally been supposed to bear a proportion to the size of the fist of the individual; but this is a mere rough estimate; because a labouring man will have a larger fist than a very fine gentleman, from the more frequent use of his hand. Still, however, this holds good as a general rule; the heart bears a certain proportion to the fist in different ages, it is about the size of the fist; but in a diseased state, it will be even four times larger than that. You must also remember, that in infancy, the walls of the left ventricle are proportionately thicker than those of the right, than in after life.

Although the substance of the heart in this disease is generally firmer than usual, yet sometimes it is only of its natural firmness, and sometimes it is softened; but that is only toward the latter stages. The thickening of the walls is not always uniform; you will occasionally see one part of the walls much thicker than another. Next to the left comes the right ventricle, in point of frequency of hypertrophy.

As the auricles are more thin and delicate than the ventricles, their disease is dilatation. You will continually find the auricles dilated, but rarely hypertrophied, whereas the top ventricle is every day hypertrophied.

If it happen that the heart is both hypertrophied and dilated, there must be an enormous addition of substance. If both ventricles are hypertrophied and dilated, then you have an enormous heart, and it acquires a roundish form, the apex being lost, or nearly so.

When dilatation alone is observed, the heart is generally softened; and when the dilatation bears a large proportion to the hypertrophy, then the heart is generally softer. Dilatation sometimes arises from obstruction; it is not an inflammatory affection, but from mere obstruction, one or more cavities dilate. Sometimes it would seem to arise from a softening of the part, so that it gives way gradually. The dilatation is sometimes attended with such remarkable softening, that one cannot ascribe it to anything else than a morbid softness of the heart.

The auricles are not only far more frequently dilated than the ventricles, but there is every reason to suppose that they are often temporarily dilated, from a temporary obstruction; and when that is removed, they re-acquire their natural size. The reason for supposing this is, that when the auricles have been much dilated, there has been a dull sound, to a great extent, at the upper part; and when this has been removed, the natural sound has been heard again on percussion. Such cases of temporary obstruction sometimes occur in the lungs. Sometimes, in chronic bronchitis, and other diseases of the lungs, there will be such congestion that the blood does not get out readily. This is sometimes the case in the auricles, and when it is removed, the signs of dilatation have disappeared again.

Hypertrophy is sometimes cured; being generally of an inflammatory nature it is sometimes, by antiphlogistic regimen and treatment,

altogether removed : of course, there has been no particular tendency to organic disease, and the person has been well treated.

Dilatation of the auricles is by no means dangerous, and is frequently removed, not being of very great importance ; but I should think the ventricles seldom re-acquire their natural size after dilatation. Dilatation of the ventricles from obstruction at the mouth of the aorta, or elsewhere, or from a softness of the heart, and of course you cannot remove though you may lessen organic obstruction in the heart ; and as to softness of the heart, I do not think it has often been removed, though sometimes. I have seen symptoms of dilatation of the ventricle give way when the person acquired strength, but I dare not say the dilatation itself has given way.

DISEASES OF THE HEART—HYPERTROPHY—DILATATION.

BERTIN mentions three varieties of dilatation which are without any increased thickness of the walls—with increased thickness of the walls—and with thinness of the walls. Now a morbid thickness of the walls is the same as concentric hypertrophy ; dilatation with the walls of a natural thickness, is the same as eccentric hypertrophy ; in dilatation with the thinness, to have no hypertrophy the walls of the ventricle should bear a proportion to the thinness ; but if the dilatation be very great and the thinness not considerable, then additional substance must have been deposited.

The signs of hypertrophy noticed by those who do not employ the ear, or stethoscope, are palpitation—violent action of the heart ; and you will find in this, as in palpitation from most other causes, that the patient lies easiest on his back or right side. The palpitation is a source of greater inconvenience to the patient when he lies on the left side. You will find this to be the general rule ; the exceptions are, when some cause operates particularly on the right side. In general, in simple affection of the heart itself, attended by palpitation, the patient lies best on the right side, the heart is then not so near the ribs as when he lies on the left side, and causes less inconvenience. Another symptom is, difficulty of breathing, and the least motion makes the patient worse in this respect. Going up a small ascent, or walking fast, will in a moment cause the patient to lose his breath in a remarkable manner ; so that with these symptoms you should investigate immediately if the patient has disease of the heart. Then there is very often uneasiness in the side, and even sharp pain. Hypertrophy is so generally inflammatory, that the patients continually have pain in the region of the heart ; this pain may have passed off before you see the patient, but originally, if not, during the whole course of the disease, there is more or less pain in the cardiac region. Besides these symptoms, the pulse is generally disturbed, quicker, and often stronger than it should be. Frequently too there is dropsy ; and the force of the heart is such as to cause headache ; if the vessels of the head are weak it will cause apoplexy, vertigo, throbbing of the temples and neck.

But none of these symptoms may be depended on alone. You

may have dropsy, and dropsy and palpitation, without any disease of the heart, but merely from its functions being disturbed. You may have violent pulse, strong palpitation, and dyspnoea, from a mere general irritability of the whole system, and when the heart is disposed to beat violently, whether from structural disease or not. Again, as the walls of the heart may be much thickened, the pulse may be rendered small, because the cavity of the left ventricle is lessened; in the case of concentric hypertrophy the heart may beat violently, but the arteries are not well distended from there being so little blood in the diminished cavity. You may also have small pulse from the aortic valves being diseased; although there is great hypertrophy, and great dilatation, and the cavity contains plenty of blood, yet the aperture is too small for much to escape.

The great means of making the diagnosis is by the stethoscope. Now, when any part of the heart is hypertrophied, and it is generally the left ventricle, you have a strong impulse at that part; therefore, if you place the stethoscope in that situation the impulse drives the instrument against your ear at every stroke, and if you remove your head you perceive that it is jerked.

Generally, in health the left ventricle lies behind the cartilages of the fourth, fifth, sixth, and seventh ribs, on the left side; and the right ventricle and auricle, under and behind the lower third of the sternum; so that if there be a very strong impulse at the ribs as I have mentioned, without a corresponding influence anywhere else, and this is pretty constant, you would infer that it is a case of hypertrophy of the left ventricle; but if the impulse be behind the lower third of the sternum you would then consider it hypertrophy of the right ventricle. Sometimes, but very rarely, the auricles are hypertrophied; but I believe that they are almost always dilated at the same time. If they are hypertrophied it is eccentric, but usually they are not thickened at all.

There is no morbid sound from simple hypertrophy; even the natural sound of the heart is lessened: there may be a violent impulse, but it is like the thump of a muffled sledge hammer struck against it from within. In a case of palpitation from a nervous cause, you will find both ventricles thumping hard together; the heart acts sharply, and the sound is rather increased. If you attend to this, and take into account the general symptoms that I have mentioned, you can very seldom make a false diagnosis. Many cases of palpitation are called disease of the heart, but if you listen with the stethoscope and find the impulse is only in the right or left ventricle, you cannot mistake.

Now and then both ventricles are hypertrophied, but then you have no strong impulse higher up than the situation of the auricles. Generally, however, the left ventricle alone is affected; and if the right be diseased, the left usually suffers with it.

Dilatation is just the reverse of this. There is no increased impulse, but an increase of sound; when one of the cavities of the heart is dilated the sound becomes clearer, and is increased. It is

not generally a preternatural sound; it may be so, but it is not a matter of necessity.

Supposing the case is one of hypertrophy and dilation united—you have a great impulse and an increase of sound if the hypertrophy and dilatation are proportionate; but if the former be much greater than the latter, then you have great impulse and no increase of sound; but if the reverse happen, then you have great increase of sound. You may suppose that where hypertrophy and dilatation take place together, and the hypertrophy is such as to thicken the heart, then both impulse and sound are very great; indeed, the impulse is dreadful; it causes the carotids and all the arteries in the head to throb, so that the patient has a continual pain in the head, and is unable to lie down. In these cases you have a strong pulse from the great increase of the muscular substance of the heart. The head will jerk in very intense cases at every impulse of the heart.

You must remember, that when the left ventricle is both hypertrophied and dilated, it does not remain in its natural situation, which is filled by it as it was before; but the left ventricle extends much more to the right side, so that it will take up entirely the place of the right ventricle. In this case you will not only have a hard thump in the situation of the left ventricle, but you will also have it further to the left, and even behind; and you will also have the impulse of the left ventricle in the situation of the right side; so that you would think the right ventricle was dilated and hypertrophied also; but you find from the strong impulse in all the arteries, and also in the situation of the left ventricle, that it is it that is diseased. When the right ventricle is hypertrophied and dilated, the impulse does not extend to the left side; and therefore when you find a great impulse of both ventricles, you may infer that the thumping on the right side depends on the left.

When the heart is dilated, you of course have an additional symptom; from its occupying so much space that ought to be occupied by the lungs, you have a dull sound to a very great extent. In most wealthy persons, when you strike on the cartilages of the fourth, fifth, sixth, and seventh ribs, there is more dull sound than anywhere else; but if the heart be hypertrophied and dilated, then you have the extent of dull sound much increased. The same circumstance would arise from a collection of fluid in the pleura; but when you see symptoms of hypertrophy and dilatation, you may infer that the extent of dull sound arises from great dilatation of the heart.

Generally, the symptoms of hypertrophy are in the region of the left ventricle; the impulse is very considerable, and the pulse itself sharp, and for the most part full and strong. Just as in the case of a bellows sound, when there is an obstruction in any of the openings it is more frequently than not at the mouth of the aorta. So in examining the heart, it is always well to begin with the left ventricle, because nine times out of ten the disease is situated there.

In dilatation of the left ventricle, whether accompanied with hypertrophy or not, you occasionally hear a bellows sound, because, although the opening be not at all diminished the cavity is increased,

and the opening is not capable to let the increased volume of blood pass, and therefore an obstruction is felt. I presume a bellows sound would arise from the dilatation of any other cavity if the opening were not dilated also.

Sometimes in hypertrophy without dilatation there is a bellows sound from a small alteration of the position of the heart, and sometimes from the columnæ carneæ towards the opening being hypertrophied, so as to cause a little obstruction. But the great symptom of hypertrophy is a violent impulse, and of dilatation an increase of sound; not a preternatural sound, which is the sign of obstruction and of nothing else.

Now you must remember another thing, and that is, that if you examine a person near to the close of his disease you may find very few of his symptoms. If a person be very near death, although the heart may be greatly hypertrophied, yet it may have so lost its power that it can only act with very little force, and the symptoms of hypertrophy may have diminished so much that you would hardly suspect how violent a disease the person has had and is dying of; so the bellows sound decreases before death, because the heart having lost its power sends forth so little blood through the opening that it passes easier than before. So too in diseases of the heart, you might not be able sometimes, if called in just before death, to make an accurate diagnosis; the patient having lost his power he is not so wholly under the influence of the disease.

With regard to the treatment of hypertrophy, it may sometimes be cured. The heart is evidently inflamed. This organ towards the close of the disease is not only firmer and harder than it should be, but likewise redder; and frequently there is pain in the region of the heart, and even pericarditis. Now, if you make a person live on low diet, cup repeatedly over the heart, keep him quite still, and relieve the bowels when it appears requisite, so that there should be no congestion anywhere; and if you exhibit colchicum, perhaps digitalis, and sometimes mercury if he can bear it, you will see the symptoms of hypertrophy gradually decline. I have certainly known several cases where I had every reason to believe hypertrophy very great; where abstinence from meat, spirits, and things of that description; abstinence from mental excitement, exercise, and every circumstance that could quicken the pulse, was followed by decline of the symptoms, and the patient has been comparatively well. This, however, requires a long time; and after the patient appears well he must persevere, though not very assiduously, in the general plan.

Local bleeding generally answers better than general bleeding. It is not very safe in chronic diseases of the heart to bleed at the arm, for now and then patients will fall into a state of syncope, and it is dangerous in disease of the heart to bleed to syncope. There are many cases in which a patient with diseased heart lost more blood than was intended, so that faintness was produced even by a couple of ounces, and the individual has died. One case happened within the last two years, of a distinguished individual with diseased heart,

who was bled at the arm, and the bandage slipped; and although only a few ounces escaped, yet he fainted and died. It is therefore safer to take blood from the heart itself by means of cupping or repeated leeches. If you do bleed generally, which you may often do when the patient is strong and hearty, it should not be to syncope; because patients with diseased heart frequently die suddenly, and they die oftener than not through syncope.

In the case of dilatation the heart is generally found soft and paler than natural. More often than not this disease depends on debility, (though it may arise from an obstruction at the mouth of the aorta for example, or the mitral valve), and therefore the heart is usually found soft. When deposition has taken place outwards, you may find the organ firmer than natural; but in a case of simple dilatation, or dilatation with hypertrophy, after it has existed some time the reverse occurs.

Now active means are not required in such a case as this. You have merely to bleed locally in order to take off the congestion—to keep an open state of the bowels, and to enjoin rest; very frequently, however, tonics are required. If you find the pulse soft and feeble it would be dangerous to take away blood, the only object of venesection being to remove congestion. Leeches applied to the arms frequently do good in such cases, but for the most part a strong evacuation is not at all required. When, however, there is dilatation, there is much more frequently than not hypertrophy, and a disposition to dropsy. From dilatation the blood is not sent out so freely as it should be, and consequently there is accumulation and a tendency to morbid secretion in the cellular membrane and serous cavities, so that great congestion occurs in the liver and in the head; and there is likewise a tendency to general effusion. In this case you will find it very useful to give a combination of three or four diuretics. Squills, digitalis, and acetate of potash, are the best things I know; they answer far better than hydrogogue purgatives. These sort of things relieve patients exceedingly; but if the patient be at all weak you will find it serviceable to give iron, and I think the best preparation is the tartrate, because in conjunction with other means it increases the flow of urine, and the discharge from the bowels. I have seen patients with every symptom of dilatation of the heart lose the greater part of these symptoms and be able to go about after taking the tartrate of iron. It may be given in large doses; in fact, you may give a drachm, or even two, twice or thrice a day; but still you cannot give it in such large doses as the carbonate or oxyde, because it is apt to purge and pinch. You will find many persons who cannot take more than a drachm. When it is mixed with treacle, it opens the bowels, causes an increased flow of urine, and strengthens the patient. It is well, if it purge too much, to mix an equal part of the carbonate with it.

You will see many cases of hypertrophy with dilatation, where the patients are in a leucophlegmatic condition; and if you take the blood away you find it watery, and you make the patient worse. When patients are in a state of anæmia, where it has been induced by blood-

letting : or that peculiar state in which the blood is not properly manufactured, the pulse will become sharp ; and so in diseased heart, you sometimes have a sharp pulse with great debility of the patient. Now, whenever I have seen this state united with disease of the heart, I have abstained from evacuations, given preparations of iron, and have found the patients improve. But if you notice a tendency to effusion as shown in the ankles, or if you hear mucous or other rattles in the bronchiæ, you will find diuretics of essential service ; and if the debility be very great, while you give diuretics you should exhibit the tartrate of iron, which is both diuretic and tonic. With this treatment you may certainly cure some cases ; and when the affection is very severe so that cure is out of the question, you may still do a certain portion of good—you may make the patient feel better than before, and may prolong life. It is our duty to act upon a general rule, and endeavour to prolong life, whether the patient would be better out of the world than in it. If you treat all these cases antiphlogistically you may do harm ; when anæmia exists, it would be madness. The administration of iron, and even good nourishment, is then the proper treatment.

ANEURISM OF THE HEART.

Sometimes dilatation of the heart affects only one particular part, or particular parts of cavities. This disease is, properly speaking, aneurism of the heart. If only a particular spot in the whole circumference is dilated, so that a pouch is formed, it is called aneurism. The dilatation is either of all the coats, or of only the outer coat ; the inner and middle coats being destroyed.

Now, the same thing will sometimes happen to the heart. Formerly the term aneurism was misapplied to dilatation of the whole cavity, and of the left ventricle. If there were dilatation with thinness, it was called passive aneurism ; if with increased thickness, it was called active aneurism. These expressions ought now to be dropped, but you will find them employed in this way in CORVISART'S *work on DISEASES OF THE HEART*, which at the time it was published was a very good one. Aneurism of the heart occurs more frequently on the left than on the right side of the heart, and chiefly in the left ventricle. Aneurism is in itself a disease of the arteries, and therefore there is strong reason for presuming beforehand that aneurism of the heart would occur on the arterial side of that organ. I do not know of any case taking place in the right ventricle. I believe that in every case upon record it took place in the left. The affection occurred once in a patient of my own.

Aneurism both of arteries and of the heart occurs almost always in males ; in fact, I only know one instance in which it occurred in a female. The situation of it in the left ventricle is various ; in some it has been at the apex, and in quite as many instances at the base. Sometimes it has been found between the apex and the base.

The symptoms of the disease are not known. In the case under my care I had no idea of the man's affection ; I only felt satisfied

that he had disease of the heart. At one time I thought it was on the right side, at another on the left; accordingly as the disease increased it extended, and did not remain in its original spot. Dr. BAILLIE says, that the symptoms are like those which characterise aneurism of the arch of the aorta; but that is saying nothing, because the symptoms of the latter affection are dyspnoea, and more pain at the spot; but a thousand things will give rise to those symptoms. Dr. BAILLIE says that the pulse is irregular, but often regular; and therefore that also amounts to nothing. In such a case you will usually discover that a person has disease of the heart, but not always; because the affection has occurred in individuals in whom disease of the heart has not been suspected. Once, however, I met with this affection in the left auricle, but I have never seen such a case on record. In this case the left auricle was dilated into a pouch, and the pouch was lined with layers of fibrin, exactly like aneurism of the aorta; the fibrin was organized. In this case also I had no idea of the man's disease. I knew that he had disease of the heart, and I thought that it was dilatation of the ventricle. Whether I should now be able to discover this disease in any way, I cannot tell; but I should think I could not, even though I have had longer experience.

In aneurism of the left ventricle the pouch is not invariably lined with a smooth membrane, and therefore aneurism of the heart follows the exact rule of aneurism of the aorta. Sometimes mere pouches are formed in the heart, and sometimes you will find no lining membrane at all; the inner membrane of the heart having been destroyed.

INDURATION AND SOFTENING.

Sometimes the heart is indurated when hypertrophied, and sometimes induration exists without hypertrophy. When the heart is softened it is generally dilated, but not always; if softening, however, has existed long before death, I think that dilatation must follow it. Induration, therefore, is rather allied to hypertrophy, and softening to dilatation of the heart. Before death, however, a hypertrophied heart may become soft.

I do not know any particular symptoms of induration of the heart, but if it result from an inflammatory state you may expect long continued violent action of the heart, and a strong pulse. When the heart is softened the pulse is generally feeble, and after death there is frequently a quantity of bloody fluid found in the pericardium—the softened condition of the organ having allowed the blood to exude from the vessels. Sometimes when the heart is indurated, it is not redder than usual, on the contrary it is rather pale; and this is sometimes the case when it is softened. In carditis such congestion occurs that the organ is dark coloured, and usually it is soft.

Sometimes we see abscesses in the heart, and I think that they occur not very far from the pericardium, outside on the lining membrane within. It is said they occur in the middle of the substance of the heart, but I rather doubt that.

Occasionally ulceration is seen without an abscess. Of course when an abscess exits, it may go on to ulceration, and ulcerate through the pericardium or lining membrane; but sometimes ulceration seems to begin in the lining membrane itself; at least a little superficial ulceration is seen without any collection of matter.

RUPTURE OF THE HEART.

Where an abscess has proceeded to any extent, the heart is very likely to rupture, and therefore rupture of the heart has sometimes been seen after an abscess. Sometimes, however, the organ is ruptured without any abscess, and with no particular deviation from a healthy structure, unless it be softening. I never met but with one case of this, and in that instance the organ was very soft, it occurred in a medical gentleman sixty years of age, and corpulent; he had three attacks of pain about the præcordia, accompanied with dyspnœa and palpitation, but he had gone out as usual in the intervals. One morning, however, a fourth attack of pain took place in the region of the heart, and he rang his bell for his assistant, who wished him to have a fomentation. The assistant left the room, the gentleman rang his bell violently, but before the assistant could get up to him, he was dead; on opening him I found a zigzag fissure in the front of the heart, in the left ventricle.

The most instances of this disease, have occurred towards the apex of the heart. It is the apex which is thin, and when the organ grows very thin or very soft, rupture usually takes place there, or not very far from it; it may occur in any part of the heart, but it happens most frequently in the left ventricle; but there are instances of its having occurred in the right ventricle. **GEORGE THE SECOND** died of this—he fell down one morning at Kensington, the Serjeant Surgeon was sent for, who attempted to bleed him, but could not; and on opening him, they found that the heart was ruptured, and had let forth a quantity of blood. It is rather singular, that one of the same family (the **PRINCESS OF BRUNSWICK**) died twenty years before of the same affection, and not only was there rupture of the heart, but also of the right ventricle. I was once asked, whether a person could mistake syncope for apoplexy, and I referred to the particular case of **GEORGE THE SECOND**. His Majesty fell down senseless, and the Serjeant Surgeon bled him at once; evidently presuming that it was a fit of apoplexy. Had he supposed the case to be one of syncope, he certainly would not have attempted to bleed him.

RUPTURE OF THE VALVES.

Occasionally the valves give way suddenly. A valve has been torn under a violent effort, and very distressing symptoms have taken place. Great pain has generally been felt, but if not, great dyspnœa and rapidity of pulse; of course I mean if the rupture be extensive. If it take place slowly, there cannot be these sudden symptoms; sometimes, from mere intensity of the disease, the valves will become

very fragile or thin, and will give way without any effort, just as the heart will do, from extreme softening; but sometimes, on the other hand, they will give way under a violent effort. In one of the numbers of the *MEDICAL GAZETTE*, there is a very well marked case of rupture of the tricuspid valve, in which great rapidity and irregularity of the pulse occurred, and, I presume, dyspnoea; the patient died six or seven days afterwards. Death does not always immediately ensue on rupture of the heart; when it arises from an internal cause it generally does, but sometimes the patient lives for several hours. In the case of the valves, however, a patient may live for several days; and, for what I know, a much longer period than that. A very slight degree of rupture of the valves may only keep up a constant irritation, and the patient may die from its ill effects, at a very distant period. One author mentions a case which occurred after a fall, on the right side of the chest, and death did not take place for five months, and yet an aortic valve was torn.

Sometimes, instead of the valves themselves, the *cordæ tendinæ* have been found ruptured.

GANGRENE.

I have never seen gangrene of the heart; cases have been supposed to be gangrene of the heart, but I should think that they were only instances of extreme congestion of blood, which have been mistaken by uninformed persons, to be gangrene.

OSSIFICATION.

I mentioned that the pericardium is sometimes ossified, but generally I do not think, that it is the pericardium which has suffered the disease, but the subserous cellular membrane immediately below it, as in the case of the pleura. But, now and then, this ossification has been very extensive, and in proportion to that, has the muscular substance beneath, been atrophied; and I believe this is the nature of those cases which have been called "ossification of the heart." Bone has been deposited under the pericardium, or perhaps under the lining membrane within; and the muscular substance has wasted, so that the heart has been found little more than a shell. Mr. BURNS mentions a case like this, in his work on *DISEASES OF THE HEART*.—He says that no one ever saw complete ossification. From the progress now made in morbid anatomy, I have no doubt that there are instances of a deposition of bone external to the muscular substance, and a wasting away of the muscular substance itself.

It is a much commoner occurrence to see the coronary arteries ossified, indeed they are very frequently so; the most frequent situation of bone about the heart is, at the mitral valve, and the beginning of the aorta; and next to that, ossification of the coronary arteries.

ANGINA PECTORIS.

Now, it has been thought that ossification of the coronary arteries, or at least a degree of induration, amounting to cartilage, gives occa-

sion to the symptoms called angina pectoris. By angina pectoris, is meant a sudden violent pain in some part of the chest, near the heart, and especially at the sternum; this pain causing the patient to stand still if he be walking, and enduring a sensation as if he were about to expire. The pain at first is felt only at one spot, in the situation I have mentioned; but at length it extends to the shoulder, darts through the spine, goes down the arm, and arrives at the end of the fingers, being generally confined to the left side; though in a few cases it has extended to the right shoulder and down the right arm, and even down the front of the loins; but that is usually after it has existed some time at the sternum, and down the left arm. There is not necessarily palpitation, it may exist without it. Dr. HAYGARTH of Bath, has collected a vast number of cases of this kind, and has inferred that these symptoms are characteristic of disease of the coronary arteries; he does not say of ossification, but disease of the arteries, whether it be induration, or the formation of cartilage or bone. But now it is ascertained that this disease does not characterise any particular affection of the heart. You may have it without any perceptible disease of the coronary arteries, or these may be diseased or ossified without angina pectoris. You will find this disease very well described by Dr. HEBERDEN, in the first or second volumes, I think, of the TRANSACTIONS OF THE COLLEGE OF PHYSICIANS. In most instances of diseased heart, you do not have angina pectoris; and although you have frequently these symptoms, when there is ossification of the coronary arteries, or great ossification of the mouth of the aorta, yet you may have them in almost any disease of the heart, and also without any ossification.

Such symptoms will occur without any disease of the heart. In fact, some cases were described accurately, as angina pectoris; but in which no disease of the heart was found after death. The truth is, that gastrodynia is, I believe, frequently like this affection. The left side of the stomach is situated close to the heart, and a violent pain of the stomach frequently shoots upwards; frequently it will shoot as far as the shoulder, and even down the arm. In cases of pure spasmodic or neuralgic pain of the stomach, which gives way to stramonium, prussic acid, and remedies of that description, and which are shown to be diseases of the stomach, not only by their ceasing entirely on the exhibition of remedies calculated to relieve functional diseases of the stomach; but by acidity, perhaps, vomiting and various other symptoms, indicating disease of the stomach and not of the heart; I have known persons seized with a violent pain when they moved quickly, as in diseased heart. I have seen many who have had violent pain at different times in the cardiac region, and I have found this difference between it and angina pectoris—that the latter is felt only when the patient moves about, whereas a neuralgic pain is felt quite as severe when the patient sits still; frequently too there is a pain darting in other parts of the body. It is a stabbing pain, and also though it may be made worse by the patient jolting himself, yet it will frequently come on very violently when he is quite still. Another diagnostic mark is, that

neuralgia is not particularly disposed to dart through the left arm, nor is it attended by a dying sensation. I have relieved angina pectoris most by prussic acid. If there be organic disease of the heart, you cannot relieve it to the same extent as a neuralgic affection of the organ; and I do not know that I ever did particular good in such cases.

OTHER STRUCTURAL DISEASES.

There are other structural affections of the heart not to be known by any particular signs. I have seen the substance of the heart apparently changed to fat. I once opened a person in whom there was merely an extremely thin muscular substance on the outside of the heart, and within all the rest was fat. He had had dropsy, great difficulty of breathing, and acute attacks of syncope. The heart was unable to do its duty. He had been known to have disease of the heart for many years, but no one could imagine the real nature of the affection. Stagnation of the blood took place in many parts. There are some other instances of this affection recorded in the DUBLIN HOSPITAL REPORTS, and the EDINBURGH MEDICAL AND SURGICAL JOURNAL. This is different from those cases where fat is deposited outside, and also where the heart is replaced by fat.

Sometimes the heart has scrofulous tubercular matter in its substance.

It is said, though I have never seen it, that the heart is sometimes in a cancerous condition, and it will contain cysts; and they say even true hydatids. Sometimes there are melanotic deposits, but I have never seen that affection. The heart will sometimes waste away, be atrophied, and then it generally looks pale and wrinkled, and is compared by LÆNNÆC to a shrivelled apple. You will find this continually in phthisis; but it occasionally occurs independent of it. Though, however, a heart be small, you are not justified in saying it is atrophied; because it may have contracted, and you find that the walls are thick in proportion as the organ is small, as I mentioned in speaking of hypertrophy. So, on the other hand, to constitute atrophy, the walls must not thicken in proportion to the lessening of the cavity.

Sometimes the heart, when atrophied, becomes no smaller; but all the walls become thin, and the external bulk and the surface remain the same.

I once opened a very curious case: there were small globular cysts, each containing bloody fluid attached by peduncles to the inner surface of the heart. They did not hang into the cavity, but existed between the columnæ cornæ, and were seen pressing the ventricle out. It is very singular, but it occurred in the first case I ever saw that had "pulmonary apoplexy."

You will continually, on opening a heart, find a large coagulum of pure fibrin, the red particles being quite separated. These coagula were called in common language polypi. We do well to get rid of such absurd names. The fibrin was supposed to have existed during life, and to have indicated great disease; but it is now known to be

merely a separation of the red particles. Sometimes, however, this exists during life, and I think the mode of distinguishing it will, whether the coagula are organized and adherent to the substance or not. If they are organized really vascular, adherent to the sides, not merely sticking among the columnæ carneæ, but attached by real adhesions then you may suppose that they existed during life. Symptoms have been referrible to these coagula, where the course of the blood was obstructed, without any one knowing why and where a bellows sound was heard; but after death a coagulum of fibrin was found adherent, perfectly united to the substance of the heart. I once met with an instance where a large portion of fibrin was adherent to the mitral valve, just in the same way as an adhesion will exist in the pulmonary and costal pleuræ.

Thus there are many organic diseases of the heart which give no sign to the ear; but while you cannot say there is not organic disease of the heart, you cannot either say there is. There is no sign of scrofula, cancer, or abscesses in the heart. A number of changes may occur in the heart, of a structural nature, and yet give no sign to the ear, and may only disturb the functions of the organ in such a way, that you are almost at a loss to say whether there is functional or structural disease.

ANEURISM OF THE AORTA.

There is disease of another part which it is right to mention as a part of the heart. It is situated in the chest, and is an affection of the ascending aorta, particularly of the arch. These are parts which are very frequently diseased, and we have continually to make a diagnosis between affections of them and of the heart. The most common disease of the aorta is, of course, aneurism or dilatation. We continually find, on opening bodies, that while there is disease of the heart itself, there is disease of the aorta also. The inner surface is rough, perhaps studded with a yellow opaque substance, perhaps with bone, and frequently the inner coat is destroyed here and there, so that there is rough bone, which the blood passes over. When the inner coat is destroyed, an appearance very much like ulceration is seen. You will sometimes see the inner surface of the aorta rough, like the bark of a tree, between the yellow deposit and the bone itself. Of course there is no sign which will indicate this affection. It rarely exists alone, but is generally found united with disease of the left ventricle. Disease of the left ventricle will, however, exist without it, and it may take place independently of disease of the left ventricle.

The aorta, where it arises from the heart, is frequently dilated; and besides being dilated, it is frequently distended at one spot or more into a pouch, so that an aneurism exists. There is seldom an aneurism of the ascending aorta without a dilatation—that is to say, the whole circumference of the ascending aorta dilates in the first place, and then in the midst of the dilated vessel you see at one spot a pouch formed. Aneurism very rarely affects the ascending aorta without the vessel having been first dilated.

Aneurism of the ascending aorta frequently exists without people being aware of it, and they will fall down dead in a moment, as if they were shot, nobody imagining what is the matter; and at the autopsy, the aorta is found ruptured into the pericardium. I had a striking instance of this in a woman who came into the hospital with a pain in the neck, face, and shoulder, which appeared to be rheumatic. Leeches were being applied, she shrieked, fell back, and was dead in a few minutes. On opening her, I found that the pericardium was filled with blood. In these cases, on cutting the pericardium, out flows a quantity of bloody serum; then, after that, you find a coagulum of blood, and then you observe a fissure in the aorta; first in the pericardium; and under that again you generally find a transverse fissure. In this case, the inner and the middle coats had given way some time before; a great quantity of blood was effused, the coagulum was organized, and as in common aneurism, it pushed out the external coat, which suddenly cracked, and she instantly expired. Supposing that the disease is situated in the ascending aorta after the vessel has left the pericardium, the patient then frequently complains of pain at that particular spot; and on listening, you hear a certain loud sound at the stroke of the heart—at the time of the pulse, and this long before it has produced a tumor. When the aneurism has attained a certain size, it generally produces a tumor on the right side, about the fifth or sixth ribs. The symptoms of disease of the heart are at the sternum on the left side; but in the case of the ascending aorta, they occur on the right side. If the disease be situated higher up still, in the arch itself, you have the tumor in the situation of the third or fourth ribs. If it occur in the superior part of the arch, then you have the tumor above the sternum of the clavicle. Now, when there is a tumor, it pulsates very strongly, and there are general symptoms. There is frequently cough, frequently mucous and bloody expectoration, and sometimes there is difficulty of breathing. The dyspnoea is sometimes so great that the person cannot lie down, and sometimes there is difficulty of swallowing. If it so happen that the œsophagus is pressed upon, the compression is frequently such, that it produces spasmodic asthma. You have pain at the right shoulder, pain down the right arm, and pain at the right side of the head. Under these circumstances there can be no doubt whatever as to the nature of the disease.

I have found that I have been able to discover this affection by hearing a loud sound in these parts. BERTIN said that it could be discovered, but LAENNEC said it could not. BERTIN, however, replied that LAENNEC did not apply the stethoscope in the right place; that he should have applied it over the sternum, and then, in the incipient stage, he would have heard a loud sound. I certainly have heard at that part a loud sound, louder than at the heart itself; and when the patient has had difficulty of breathing and cough, such symptoms as might arise from aneurism of the arch of the aorta before there has been an external tumor. I had a case in which I was able to verify the diagnosis, but then I had something more to

guide me, for there was a tumor, so that it was clear there was some disease in that quarter; and therefore I did not pretend to be very sagacious in making out that the arch was dilated. If however, there be no tumor, so that there is nothing to guide you but the ear, I should think the diagnosis would not be very certain. Occasionally you hear a bellows sound, just as in aneurism of other parts, and sometimes you have a double sound; exactly as in the case of the heart, and for this reason you hear the sound of the heart and also the peculiar sound of the aneurism.

TREATMENT.

Of course nothing can be done but to enjoin perfect rest, and deprive the patient of all stimuli, giving him that nourishment which is least likely to quicken the pulse. Bleeding from time to time is exceedingly useful: you relieve the sufferings of the patient exceedingly by bleeding him. You know that in aneurism, nature fortifies the part by producing adhesions around it; but there is frequently more inflammation than is useful, and there are frequently pricking, stabbing pains, together with violence of the heart's action, and all these are of course diminished by bleeding. You will find the blood buffy and cupped in such cases, because there is inflammation going on. These are cases not to be neglected: one may not be able to save life, but we may diminish pain.

ACUTE PERITONITIS.

INFLAMMATION of the peritoneum is attended by pyrexia. Although the whole body is hot, yet generally the abdomen is hotter than other parts. The pulse is generally rather small and quick, sometimes wiry, sometimes hard, sometimes soft. There is no invariable pulse in peritonitis, except that it is always quick; oftener small than full, and perhaps oftener hard than soft. The tongue is sometimes pretty clean, at the utmost only whitish; sometimes covered with thick creamy mucus, sometimes rather dry. The abdomen is always very tender on pressure, and the tenderness is too general for one to suppose that any particular organ is inflamed, and this is one of the means of distinguishing peritonitis from inflammation of a particular organ. As the peritoneum stretches all over, and a great proportion of it is usually inflamed, the patient is generally easiest on his back; and sometimes, to obtain all the ease possible, the patient lies with his knees spontaneously raised. Generally, patients cannot sit up on account of the abdominal viscera gravitating so much as to produce painful distention, and therefore they are easiest in a lying posture. There is frequently also pricking pain, as if needles were running into different parts of the abdomen; and sometimes there is a sharp cutting pain. The abdomen is usually very tense. As it is a mere membrane that is inflamed, the bowels generally are regular, and there is no obstinate constipation.

Although the inflammation is usually very universal, yet of course it may rage at one spot more severely than at another; and if that

part be over any organ, the function of the organ is more or less disturbed. If, for example, at any particular period of the disease the membrane covering the stomach is inflamed, vomiting is induced; if it be that portion which covers the bladder, and which is only partial, then there may be very great irritation of that organ causing strangury.

As the inflammation spreads, it attacks one part after another. It is the peritoneum at large that is inflamed, and therefore the tenderness is general, and the pain diffused; and any disturbance of function that exists in the abdominal viscera, is trifling in proportion to the general pain and uneasiness. You distinguish it thus from inflammation of any particular organ.

Acute peritonitis may last about a week, before it proves fatal; but if it is remittent, it may last much longer.

The post mortem morbid appearances are those which are usual in inflammation of a serous membrane; for example, a quantity of whey-coloured turbid serum, with flakes of fibrin. The serum is rarely bloody. The fibrin is frequently effused in a gelatinous form, both in the pouchal and visceral portions, and perhaps adhesions are thrown out, so that there are bands. Sometimes the secretions are pus, and sometimes they merely resemble it. As to the redness of the peritoneum, that may be either in little stars, a collection of red points, or it may be diffused in patches. The peritoneum becomes rather thicker, and less translucent than in health, and sometimes it is very pulpy. When the peritoneum, covering the alimentary canal, is inflamed, the redness will sometimes spread inwards, even to the villous coat; but you very rarely find inflammation of the parietal portion spread outwards towards the abdominal muscles.

This disease very often occurs in a puerperal state, and by some is thought occasionally to be contagious. It is called then puerperal fever. Sometimes it occurs directly after delivery, and sometimes many days afterwards, whether the patient is sickly or not; and it will also occur during the latter period of pregnancy. Whether it is contagious or not, it is very often epidemic; and one might say endemic; for sometimes this disease prevails to a great extent, at a particular period, and sometimes it prevails only in particular districts.

Peritonitis is frequently the cause of death in cancer of the womb, and various other diseases of the uterus or ovaries. Whenever ulceration exists for some time in these parts, the peritoneum around the ulceration comes to be inflamed, so that peritonitis is a common termination of organic diseases of these parts.

Peritonitis also sometimes occurs from ulceration after a rupture of the stomach or intestines, which sometimes occurs from a hernia, either from the operation for it, or the hernia itself; from an operation for the stone, from paracentesis abdominis, &c. It will arise from any wound, or from any mechanical injury inflicted on the abdomen. It frequently follows the application of cold, and especially cold and moisture when the body is overheated, just the same as any other inflammation.

The treatment of the disease is by general bleeding, followed by an abundance of local bleeding by means of leeches; (cupping would produce great pain), a rapid affection of the mouth by mercury and leeching, the bowels well purged the whole time. Some prefer fomentations, and others blisters; perhaps it does not much matter which you apply; but if after having bled as much as you dare, you want to do more, then blisters will be of great use. Some have recommended the external application of cold to the abdomen in such cases, but I have never employed it.

A great variety of treatment is requisite in puerperal fever. You may have cases where there is active inflammation, demanding vigorous antiphlogistic treatment such as I have now mentioned; whereas in others, application of leeches is the utmost that can be borne. Patients have more or less pain in the abdomen; but you find that the pulse is feeble, and if they are bled, they will sink so much the sooner, and therefore all you can do is to apply a few leeches, to give a moderate quantity of mercury, and exhibit opium freely. The inflammation is so slight in some cases, and the loss of power so great, that after death the peritoneum is not found red, but rather pale; and it will have, lying upon it, a very soft lymph, showing that there was an inflammatory state, but that it was attended with extreme weakness. Where you find the pulse feeble, and the patient's countenance expressing great weakness, opium is far more suitable than bleeding; but if the tenderness seems to indicate bleeding, a few leeches would be all that is proper. Purging even has been too severe in this case; but a moderate quantity of mercury cannot be objected to, but it must be a preparation that will not produce affection of the bowels—for instance: hydrarg: cum: creta. To apply warmth and moisture is also very serviceable. Dr. Gooch strongly recommends the application of bran moistened with hot water, and placed between two pieces of linen—it seems to give very great relief.

Sometimes children have all the marks of hydrocephalus, and yet no signs of inflammation are observed after death. In the case, however, before us, the membrane is inflamed, but the debility is out of proportion to the inflammation. You perceive that the treatment of puerperal fever, especially after delivery, requires to be much varied.

CHRONIC PERITONITIS.

Peritonitis is very often chronic, and then there is tenderness, and likewise a pricking pain on pressure. There is almost always a feeling of tension, and sometimes that is more complained of than the pain itself; but sometimes the integuments are quite flexible. Of course there is pyrexia. The pulse is always quick; there is more or less thirst; the skin is generally more or less dry; the tongue is foul, and either white or yellow towards the back; the breath too is often foetid; the face sometimes looks doughy; the bowels generally are torpid, and frequently there is ascites from the chronic inflammation of the membrane causing an excessive secretion. The body

wastes, and the internal functions are very much deranged. The stools are very copious, and generally whitish-brown, not being so fully impregnated with bile as they should be; and the mesenteric glands are frequently diseased. Generally, indeed, chronic peritonitis, in young persons, is scrofulous disease, and connected with affection of the mesenteric glands.

You may find, after death, the membrane excessively red and thick, and an effusion of serum and fibrin.

The treatment of the disease is—the frequent application of leeches; the frequent use of the warm bath, general or partial; warm applications, such as the bran poultice I mentioned, applied constantly day and night, or cold application; frequent blisters, and a regular purging with calomel. The intestines are very full. Of course the diet should be mild. If there be no very great excitement, you may, after the disease has lasted some time, try mild tonics—the mildest form of iron; but during the great period of the disease, mild anti-phlogistic measures are the preferable mode of treatment.

If with or without this disease the mesenteric glands are enlarged, you may or may not have a tumor. They are often much diseased, without producing a tumor; yet they are sometimes so diseased, that there is a general hardening of the abdomen. When there is peritonitis, you can only infer disease of the mesenteric glands, from the scrofulous look of the patient, from his wasting away, and from there being something more than chronic inflammation of the pericardium can produce. When there is tumefaction from disease of the mesenteric glands, a great deal of it is, frequently, flatulence, so that on percussion there is a very considerable sound. Sometimes there is tubercular deposit in the peritoneum itself, so that besides chronic peritonitis, you have scrofula of the peritoneum. It is not easy to make out the nature of such a case as this. It is plain that there is peritonitis, and also scrofula; but whether there are any tumors or not, or whether the disease affects the mesenteric glands, or the peritoneum itself, is not always an easy matter to decide, nor is it any matter. Sometimes the mesenteric glands get very large, and before that, there is a sense of dragging in some particular direction. In very bad cases, and where scrofula exists in the abdomen as well, there is great emaciation; sallowness of the complexion, sometimes a sort of marble white; a hectic flush on the cheek; at any rate, at certain parts of the day; and the eyes look clear and glazed. Sometimes, in the course of the day, there is a deep lancinating pain in some parts of the abdomen. The stools are generally plentiful, foul, frothy, and imperfectly tinged with bile. Sometimes the stomach is much disturbed, so that there is a burning sensation in it. The lips frequently swell, are of a deep red colour, and crack from ulceration in the corners. Of course there is feverishness. Although the pulse is constantly quick, yet there are exacerbations. When the patient does not sweat on falling asleep, the skin is often perfectly dry. The emaciation is often very great in these cases, and the ends of the fingers are frequently enlarged as in phthisis.

The symptoms are always much more severe, and the emaciation

is greater than in simple inflammation of the peritoneum; but it is often hard to tell if there is peritonitis alone, or if the two complaints are united. It is only by finding that the disease is inveterate, and that it will not give way to common antiphlogistic measures, that you at last begin to suspect that there must be something more than inflammation.

Occasionally the lymphatic glands, and especially the glands of the loins, are more diseased than the mesenteric glands.

These affections are seen sometimes in adults, but they occur oftener in children.

If there be a very great mass of tubercular symptoms, it may produce peculiar effects by pressure on various parts. There may be suppression of urine from pressure on the ureters; jaundice from pressure on the gall ducts; and vomiting from pressure on the pylorus. Some have supposed that when the mesenteric glands are enlarged, the emaciation occurs from the chyle being interrupted in its course; but even if that is not the case, the scrofulous disease is enough to account for the emaciation; indeed, some experimenters have found an injection pass freely through the absorbent glands, though they were variously enlarged. Many have asserted this.

It may be right to exhibit iodine in its various forms in this disease; and if you can discover a tumor in any part, or any general hardness of the abdomen, so as to make it probable that the mesenteric glands are enlarged, it may be given from the first. We should also rub in hydriodate of potash, as the patient can bear it; but often the pain is too great for it to be borne at all. The hydriodate of potash will often be borne when the iodine cannot; but these are very unsatisfactory cases to treat, and we can frequently do no more than send the patient from the unhealthy situation in which he may reside, to the fresh air. You may sometimes in these cases see the whole of the intestines glued together. Sometimes the peritoneum itself is ulcerated, the intestines being sound within. Sometimes the ulceration quite thins the peritoneum; it even ulcerates through, and then you find ulceration of the intestines and chronic inflammation of the mucous membrane of the intestines and lacteal glands, and often the lumbar and dorsal glands are all enlarged and suppurated; so that there is decided hectic, and the most extreme suffering before death, and after it you have certainly the most frightful spectacle that can be seen in morbid anatomy. This is certainly a scrofulous affection.

ASCITES.

Sometimes, though the chronic peritonitis is very slight, yet the effusion is exceedingly great; and sometimes indeed there is scarcely any mark of inflammation to be found. The peritoneum becomes thick and of a satin whiteness; but you have a structural change of the peritoneum, and a copious deposition of water. When this effusion is very great, we call the disease ascites.

When acute or decided inflammation does not cause ascites, you will find generally marks of structural change; and some ascribe it

to disease of the liver—so frequently is that organ affected at the same time. Where, however, the peritoneum is diseased, you will find that portion covering the liver very thick, quite white and opaque, and I think that ascites arises from a structural change in the peritoneum itself. Some ascribe it to an obstruction in the liver or spleen, which may exist; but if it arose from that source, it is strange we do not find all the veins enlarged; and stranger still that there is no effusion into the intestines, a varicose state of the veins and things of that description. I have seldom opened a case of ascites in which the liver was not diseased in some part or other.

Dropsy of the peritoneum is characterized by a fluctuating and elastic equable tumefaction of the abdomen. At first the patient is only inconvenienced by it when he sits upright, and fluctuation is discovered only at a certain point; but as the disease extends, the tumefaction becomes universal. The best mode of discovering the fluctuation is, to place the hand against one part of the abdomen, and then give a gentle rap with the fingers on another. Occasionally the integuments or the peritoneum are very much thickened, and it is necessary to give a good sharp rap; but generally you may feel the fluctuation by a very gentle tap. You will sometimes not find the fluctuation throughout, and occasionally the peritoneum differs in thickness, at various parts, so that it is necessary to tap various ways.

Generally, there is very little urine; but however much the abdomen may be distended, there is generally little dyspnoea; so long as the chest remains free, so long as there is not disease of the heart, or pleuritis, or bronchitis; it is surprising how well patients will breathe with a very large abdomen.

The tumefaction begins in the lowest part, and gradually ascends till the whole abdomen is filled with it.

If the disease proceed from acute inflammation, subdue that, and the dropsy will cease; but when it is not the result of any discoverable inflammation, acute or otherwise, the prognosis is generally bad, and more especially if you can discover disease of any of the abdominal viscera.

Edema of the legs follows the affection after a time; but sometimes the latter begins first, and the ascites is nothing more than the result of a general tendency of the cellular and serous membranes of the body to secrete fluid. But where there is not this disposition to dropsy, and its occurrence in the abdomen is a local disease, the legs swell last, and often this does not occur for some time.

The fluid that you find is generally yellow and glutinous, and the longer the disease lasts, and the oftener the patient is attacked, the darker it generally becomes, and the worse the case itself becomes, because the peritoneum falls into the disease, and perhaps becomes quite soft.

TREATMENT.

In this disease, if you have inflammation generally, you have only to treat that; but if you find no inflammation—simply a swelling of

the abdomen, you will frequently get rid of it by purging the patient briskly with elaterium or any hydragogue purgative, as jalap or cream of tartar; but elaterium is the best. However, you must begin the dose very carefully, for one person will not bear above a quarter of a grain, whereas I have given others five or six grains. Much depends on the preparation. Nothing is more adulterated than elaterium. When you have a fairish preparation, you should give a quarter of a grain, and ascertain how far it agrees with the person to whom you give it. If you give a grain at first, it may produce such violent vomiting and purging, as to cause great distress. Some patients will bear the dose increased to five grains; but the average quantity is from half a grain to a grain and a half. While you exhibit this every day or other day, it will be good practice to support the patient with wine. It is surprising how much fluid may be got away; and while there is no rule for the dose, yet the object is to discharge as much liquid from the alimentary canal as possible, according to the patient's strength.

Purgatives are certainly among the best means you can employ; neither leeches nor blisters do much good. If you find that there is organic disease of any sort, you may give mercury, iodine, and things of that description; but frequently with all these, you are obliged to tap the patient. I do not know that there is any harm in tapping early; but it may be of great use in preventing the parts from becoming stretched, that they will not contract again. It is a fact that the more you tap dropsy of the ovaries, the more harm you do. The sooner you tap the patient, the sooner must she be tapped again. There is no doubt, but that in ovarian dropsy, the greater the length of time you can postpone the operation, the longer you may still put it off; but this is not the case with ascites.

If you chose to treat the disease with diuretics, which is often a good practice, squills, digitalis, and mercury, answer very well. This is not so certain as treating the case by hydragogues, which are also diuretics; but if you adopt it, you will frequently find that the kidneys will not act, and if you tap the patient, they will act immediately. It is common when the abdomen is in a state of great distention, for the kidneys to refuse to secrete; but if you take off the tension, the patient will make a great quantity of water. You will observe this, whether patients are taking diuretics or not. It is always useful when the water is lessening, to have the abdomen well bandaged, or to have a thin belt, producing equal pressure throughout.

It would be well, before you propose the operation to a surgeon, carefully to ascertain whether the disease exists; because the urinary bladder will sometimes become enormously distended. I have seen it so distended, that the person has been supposed to have ascites; but on drawing off the urine, it has entirely disappeared.

This disease sometimes co-exists with pregnancy, and pregnant women have been tapped for ascites successfully. Sometimes it co-exists with a diseased ovary. I have known instances where the

ovary was as large as a child's head; and in addition to that, there was ascites all round it.

The peritoneum is subject to some other diseases, such as scirrhus, tumors; subject to become cartilaginous, bony; to have fatty tumors and hydatids, and the same applies to the omentum.

The lymphatic glands within the abdomen, besides being subject to scrofula, and sometimes found after death to become indurated—almost changed to cartilage, and to have suppurated independently of all scrofula, to have pus collected in them in a small quantity. These glands are also subject to melanosis, to scirrhus, and to the formation of earthy connexions; and so likewise are the mesenteric glands, but you cannot make out the nature of the affection till after death. When the inner surface of the intestines is much diseased, the mesenteric glands are also almost always affected. When there is scirrhus, or the intestines are cancered, all the neighbouring glands, the lacteals and absorbents are generally enlarged, and have the same disease; but you can only discover this during life, when by chance some particular tumor is produced.

Cysts likewise form in the subcellular membrane of the peritoneum. Occasionally there are cysts in other organs, which project into the peritoneum: sometimes cysts are formed in the ovaries—they will become dropsical: sometimes large cysts are attached to the concave surface of the liver, sometimes to the centre, and sometimes to the side; so that, besides ascites, you have often large serous cysts. In these cases the tumor is not general, but local—may take place anywhere in the abdominal region. It usually occurs at one side in the first instance, and arises from the ovaria. You will find that the fluctuation is local. Though the tumor generally arises from the ovaria, yet I have seen a large cyst at the epigastrium attached to the liver. Now and then there are small cysts attached to the spleen, and at last the tumor will become so excessively large that it is impossible to say whether there is ascites or not; the whole peritoneum will become filled. In the same manner you may not be able to say whether there is ovarian dropsy or not.

OVARIAN DROPSY.

I once saw an old woman who had this disease many years, and never would be tapped. She was an immense size, and at last grew so big that eighty-four pints of water were let out. The diaphragm had been pushed up to the fourth rib; the chest was exceedingly small, but the abdomen was immense. Mr. CHEVALIER says that he once saw 136 pints removed, all of which have existed at once. It was drawn off at three or four times. The health in these instances is not affected; so that a woman at Paris lived to be tapped 300 times. Another woman was tapped 154 times, and meanwhile had three children, and was tapped two or three times during each pregnancy, so that she lost no time; at least twenty pints were removed each time, and she was tapped various times in twenty years. There

is another case, in which 6680 pints were taken away ; it was drawn off at eighty operations, performed in twenty-five years. In one year this woman had 495 pints taken away. There is an account by a celebrated French surgeon of a case where 427 pints were taken away in ten months. Mr. CARRUTHERS mentions a case of a woman being tapped nineteen times in three years. A German author mentions an instance where a person was tapped 143 times. Only two years ago there was a woman from Chepstow, who stated that she had been tapped 112 times, and had had 2888 pints taken away from her ; and she had a certificate of this from a medical man. It is undoubtedly the case, that people will live very long, suffer an immense secretion of water, and bear tapping in this extraordinary way.

The fluid is frequently exceedingly greasy, so that you will find on the surface a quantity of iridescent, or a stony whitish shining substance, which, if nobbed in the fingers, will form an unctuous mass. I have collected it, and found that it would melt and burn with a bright flame, and is insoluble in water. Dr. BOSTOCK says, that he found in the case of very old hydrocele the semen mixed with a portion of this unctuous substance. He thinks it to result from a change undergone by the fluid after its deposition ; in that case, however, it must have been of very long standing. He found it analogous to adipocire. He calls it albumind—serous matter, and says it is distinct from cholesterine ; it is not the same as that which is found in the liver, urine, and certain biliary calculi, though analogous. Something like this has sometimes been found in the thyroid gland, and in the fluid of various humours.

Sometimes you will have what is occasionally called encysted dropsy of the abdomen, arising from a fallopian tube being closed at each end, and a great quantity of fluid being amassed within.

In dropsy of the ovaria I should defer tapping as long as possible, because, firstly, when you have once tapped a patient, she soon requires to be tapped again ; and, secondly, because although in an early period of the disease there may be many cysts, yet generally they ultimately open into each other, so that you have only one great cavity ; since, if you tap early you probably draw off only a portion of the fluid by the operation, the cysts being distinct.

In these cases, the only remedies of any use are iodine, and sometimes mercury. The best treatment in cases of encysted dropsy of the ovaria, is to support the patient's strength, to put off tapping as long as you can, and give no medicine but iodine. It is in vain to try to excite absorption by diuretics, and by purging ; you will only nauseate the stomach and take away the appetite.

I have seen cases of encysted dropsy of other parts of the abdomen apparently yield to the free exhibition internally, and application externally, of iodine ; and it will succeed partially in ovarian dropsy. I have thought that combining these remedies with mercury increases slightly their power.

Frequently you find no fluctuation for some time when an ovarium is enlarged ; the walls are solid, solid substance is deposited, and it is not till the fluid has considerably accumulated that you can discover

fluctuation. In young women especially, encysted tumors of the abdomen are partly solid and partly fluid; and occasionally if you squeeze the part you find small moveable tumors, having portions of cartilage sometimes deposited; and sometimes you find hydatids within. I had a case in which there was a tumor of this kind, and which I concluded was tumor of the ovarium. Fluctuation was present, but it was not apparent. I was giving this patient large doses of calomel on account of there being a large quantity of solid substance apparently of very great hardness, when she was seized with violent vomiting and purging, with intense pain; I will not say whether it arose from the calomel. In the course of one night the tumor entirely disappeared, after having resisted every other means for some months. The tumor might have burst into the peritoneum, the fluid might have been quickly sucked up by its absorbent, and as quickly secreted by the vessels of the kidney; or a great discharge might have taken place from the intestines from violent purging being set up, and the absorbents reduced the tumor. However that may be, after not very long the fluid re-accumulated, and the tumor became as large as ever. It does not seem likely that the absorbents within the tumor were enough to produce such rapid absorption; it is more likely that the tumor had burst at some other part. It seems that the fluid has been discharged by the vagina; that tumors of this kind have ruptured into the peritoneum, and the fimbriated extremities of the fallopian tubes have pumped away the fluid into the arteries, and thus it has been discharged. But there are several cases on record of women falling down with the ovarian dropsy, and beginning very soon to discharge a quantity of water from the vagina, but the swelling had disappeared. It is difficult sometimes to know whether the water comes from the vagina or the urethra; if it comes from the former, we must suppose that the tumor had been ruptured, and that the fallopian tubes had pumped up the fluid; whereas if it comes from the latter, we may suppose that the vessels of the perinæum have sucked it up, and then it has been re-secreted by the kidney.

TYMPANITIS.

Sometimes air is collected in the peritoneum, or the intestines which are exceedingly distended with it, so that the person becomes very large, and the tumor gives rise to a sound like a drum, whence it is called tympanitis. But more properly speaking, tympanitis is a great collection of air in the peritoneum; and I believe that this usually occurs from an aperture existing in the intestines, so that it escapes.

I shall now speak on diseases of the particular organs, and first on diseases of the pancreas.

All the diseases of the pancreas with which we have to do, are structural. The only functional disease to which it is liable is, formation of stone. We know nothing of the offices of the pancreas. It very seldom is acutely inflamed; I never met with such a case; but now and then it is diseased in a chronic manner, especially when there is disease of a neighbouring organ.

The diagnosis of structural disease of the pancreas is very different. Dr. PEMBERTON says that there is deep-seated pain in the epigastric region, especially if one hand be placed on the back and the other on the stomach. However, the pain may not be felt, or you may have pain from an affection of the stomach, so that very little is to be learned from that. He says that there is more or less sickness, gastrodynia, and emaciation; but I should think that it must be a mere guess where a person pronounces the patient labouring under diseases of the pancreas.

The commonest affection of this organ is either common induration, or scirrhus. Dr. BAILLIE says that he once saw an abscess; and now and then ulceration is seen. It is sometimes said to be ossified, to have hydatids; sometimes it is wasted, and sometimes it is very large; but generally this organ is not found diseased in dead bodies, and whenever it is, I believe the disease has evidently been chronic.

Now and then a calculus exists in the ducts. I opened a patient not long ago, and was surprised to find calculi in the pancreatic duct. I believe these calculi are always homogeneous, and I should think there were a hundred in the case I opened. Dr. WOLLASTON found these calculi to consist of carbonate of lime in the human subject, and phosphate of lime in the ox.

The next disease of which I will speak is, an affection of the spleen. We know nothing of disordered function of the spleen, but structural disease and inflammation of it are sometimes very evident, but like the pancreas it is rarely affected with acute inflammation or suppuration. Now and then, in peritonitis, that portion covering the spleen is inflamed.

When chronic inflammation exists in it, there is pain far back in the left side, higher than the kidney, but there are no symptoms of chronic inflammation of the kidney.

It is not uncommon to see this organ enlarged after ague. This is called ague cake by the common people, but technically hypertrophy of the spleen. When in this state it is generally harder than natural. The spleen will attain a great size; I have seen it reaching the pelvis, and extending from the naval towards the other side.

You will easily distinguish between this disease and enlargement of the liver by this circumstance—that on applying the fingers you find the edge vertical, whereas, in enlargement of the liver, you find the edge of the tumor is horizontal. It has sometimes weighed twelve pounds. HOFFMAN mentions one that weighed fifteen pounds; and MORGAGINI, on second-hand information, mentions a tumor weighing thirty-five pounds.

This disease will occur in children, and I have often seen it in infants. It generally arises after ague, or after the patient has been exposed to malaria. I once saw a woman who had two children, and she had had the ague, but they never had. I think that she had lived in an aguish part of the country before they were born. One of these children had enlargement and induration of the spleen, and died. On opening the body the spleen was enlarged and very

hard, but the structure seemed otherwise healthy. After a time the same disease began in the other child, and I think it is going on now, and I dare say it will kill it.

Persons in this disease are generally very pale; the blood is not proper in quality if it be in quantity; it is deficient both in fibrin and red particles. The wasting of the body is not in proportion to the paleness; the patient's bulk remains pretty good for a long time, although he will be in a state of anæmia. Now and then there is a little ascites; the peritoneum covering the spleen becomes affected like the rest of the membrane, and produces a larger secretion than before.

The diagnosis is very easy long before the spleen has attained to a large size.

The treatment should be merely that for any chronic inflammation or induration. If the tumor attain a very great size, I do not think anything can be done; but I have diminished it by the internal and external administration of iodine; sometimes, however, this treatment fails. If there be pain on pressure, local bleeding, mercury, and the common remedies for inflammation would be proper. Sulphate of quinine is good where it has arisen from malaria, because I have seen improvement occur where the constitution has suffered from malaria; and I have also seen enlarged liver much lessened, and give way with very little other trouble. If, therefore, there had been any exposure to malaria I should give the remedies for ague; but iodine frequently, I know, has a great effect in diminishing diseases of this kind. Sometimes there is no pain, and of course then you would not bleed, or apply the leeches.

Sometimes, without any enlargement, you will find the spleen very hard, cutting exactly like the liver; and sometimes it will become exceedingly soft. Very often where you could discover no particular ailment referrible to the abdomen during life, you find the spleen soft. If it be not preternaturally hardened, you may, by working it up in your hand, bring it to the consistence of currant jam; but in various diseases you find that the spleen, on cutting into it is soft.

The spleen, of course, when there is any obstruction to the respiratory organs, suffers a great accumulation of blood. It is thought by some, that the way in which patients die influences the size of the spleen. If they die after long continued dyspnoea you may find it large, although during life previously it was not so enlarged.

Tubercles of various kinds are found in the spleen, and I met the other day with a large number of vessels of the spleen in a state of ossification.

Calculi have been found in the spleen, and tubercles of all descriptions; but diseases of this organ are not very apparent unless the organ itself becomes enlarged. It is said that people can do without this organ as well as with it; and since the time of GALEN people have amused themselves with cutting out the spleens of animals, and have said that they perceived no difference afterwards. It is said that both spleen and pancreas have been absent by nature, but it must be exceedingly rare.

DISEASES OF THE LIVER.

WE will now consider diseases of the liver, which is very subject to both acute and chronic inflammation.

ACUTE HEPATITIS.

When the liver is acutely inflamed to any degree, the symptoms are pyrexia and constant pain, chiefly in the right hypochondrium, from the greater part of the liver being on the right side. There is also a sense of tension, or weight. It is said, that if the surface of the liver suffer, then you have tension; but if it be the substance, then you have the feeling of weight experienced; or if the peritoneal coat be inflamed then you have a greater degree of sharp pain. The pulse also is said to vary accordingly as the peritoneal coat or substance is inflamed, but you cannot depend upon that. You have different kinds of pulses under various circumstances. The pain extends up to the scapula, goes through also to the back, and often to the right shoulder. The patient lies best on the right side, because if he lie on the left the whole mass of the liver drags in that direction, and all the parts are put on the stretch. There is difficulty of breathing and affection of the chest, but not so great as in the case of the disease of the heart. The difficulty of breathing arises from the movement of the liver in respiration according to the ascent and descent of the diaphragm. There is also, from the proximity of the liver to the diaphragm, a short dry cough; and if you have any doubt about the situation of the pain—on which side of the diaphragm it is—apply the stethoscope; and if the liver be diseased the sounds will not be altered, but if the chest be affected, of course they will. From the proximity of the liver to the stomach, there is very often nausea and vomiting; very often there is a little, and sometimes complete jaundice. Often resolution, and sometimes suppuration, terminate acute inflammation. The latter is very rare in this country, but is very common in hot climates.

Occasionally the pus is secreted in small drops throughout the organ, but in other cases it forms one immense abscess, and sometimes both circumstances occur. An enormous quantity of matter is sometimes collected in this way.

Now, nature gets rid of this pus in various ways. Occasionally an adhesion forms between the loose and visceral parts of the peritoneum, and the matter points externally. Sometimes an adhesion occurs to the stomach, sometimes to the intestines; and I think the matter most frequently finds an outlet in that way. Sometimes nature is not able to make adhesions, and the matter pours into the peritoneum. Now and then adhesions take place to the diaphragm, and the matter is poured forth through the air passages. There have been cases in which the pus has been discharged into the gall bladder, and still more rare cases in which it has presented itself at the *back*; and these cases have been mistaken for lumbar abscess. Sometimes the matter has been emitted with the urine; and in one

case the abscess emptied itself into the vena cava, and death followed. Sometimes the abscess does not discharge itself at all, and patients have died with a large abscess which was not known to exist before. Of course if the matter is disposed to discharge itself externally, it is plain enough if it discharge itself into the stomach, the matter is vomited; if into the intestines, you have matter in the stools; and if it discharge itself by the air passages, you have cough, and many of the signs of phthisis.

But perhaps, oftener than not, hepatitis subsides into the chronic form. If the inflammation be superficial, you will have great chronic inflammation—great pain there, especially on pressure; and probably ascites, from the peritoneum being affected. If the substance alone be affected, you will have mere dull heavy pain there, and very often no ascites at all.

Acute hepatitis is very common in all the fevers of hot climates, and hepatitis is continually united with all other inflammations of the abdomen. Chronic hepatitis is frequently united with dysentery.

Of course, chronic inflammation of the substance and surface of the liver may be conjoined the same as in the acute form; and the former also will produce an abscess, and be followed by all the structural diseases to which the part is subject.

The causes of both acute and chronic hepatitis, are the common causes of inflammation. It seems to be much predisposed to by continued heat, at least it is very common in hot climates. It is said, that long continued heat alone induces pure hepatitis; but if that be united with the cause of fever, then you have a continuation of hepatitis with various fevers.

This disease is easily distinguished from inflammation of the chest by the absence of all auscultatory signs, and by the situation of the pain, and from there being nausea, vomiting, and dry cough. By the pain being so much to the right side it is distinguished from gastritis, which is felt to the left side of the epigastrium. There may be symptoms at the epigastrium, but you also have considerable pain to the other side. It is distinguished from peritonitis by being local.

The treatment is that of common inflammation, and is generally very successful. You have only to make your diagnosis, and treat it accordingly.

However, it was once supposed that mercury ought not to be given in acute hepatitis, because it stimulated the organ, but that it was proper in the chronic form. Now, in fact, both forms require the same treatment. The terms acute and chronic merely refer to the duration of the disease, and there is no difference except that the symptoms are less urgent at one time than at the other, and whatever is good for the one is beneficial to the other in a less degree. But I do not even know that mercury does stimulate the liver, as has been supposed; It was thought that it would give a bilious tendency when there was not one, and mercury may produce bilious evacuations when long continued; but I am sure that mercury pushed on to ptyalism is as useful in active hepatitis as in other acute

inflammations. I do not know that it will do any good by its specific action on the liver, but by its general tendency to produce active inflammation. Purgatives are much more useful in inflammation of the liver than in inflammation of the chest, because they act as local means and prevent a great deal of blood from going into the vena portæ, and therefore less goes into the liver.

The chronic inflammation requires the same treatment as the acute, only carried on less violently—carrying on your measures for some weeks or even months, and not doing all you have to do in a day or two. The moderate exhibition of mercury, so as to keep up a gentle affection of the mouth—not to produce a rapid pytalism—is useful.

Long continued purging is very beneficial in chronic hepatitis, and hence the Cheltenham waters do great good in this respect, from draining the abdomen generally; some have conceived acids very useful as tonics; and nitric, and muriatic acid, were very famous some time ago; but I do not know that they are of any particular use. I have never found it requisite to make any difference between treating hepatitis and the same disease in any other part. Some have thought that dandelion does good, but I have never seen its virtues. The suppuration that sometimes occurs requires to be treated on common principles. If the abscess point to the skin, of course a knife may be employed and the matter let out; only it might be dangerous to let out a great quantity at once; it should be done gradually, that the part may slowly contract. If the discharge occur inwardly, through the lungs or the intestines, you have only to diminish the irritation by narcotics, and this will be requisite if you open the abscess.

Many structural diseases of the liver are called chronic hepatitis, and indeed it is very often impossible to make the distinction. You will find at the onset pain at the right side, and at the shoulder; perhaps a little jaundice, tenderness in the region of the liver, pyrexia and wasting, and you may say that the patient has chronic hepatitis. You treat him accordingly but do not succeed, on the contrary, the disease remains, and at last the liver becomes much thickened and very much enlarged. Sometimes it is enlarged and hardened from the beginning, simply as the result of inflammation, and sometimes it may be subdued by the common remedies of inflammation. I am certain that the liver, from mere turgescence of blood, inflames, and perhaps, from mere congestion, will become very large. I am sure that the bulk of the organ will alter according to the quantity of blood in it; for I have seen it large, and in a week or two it has been small again. Internal organs will vary very much, they will suffer a sort of erection from the congestion of blood.

But supposing that after having used the remedies for inflammation the disease does not cease, and the size of the liver does not lessen, then there is reason to suppose that there is something more than chronic inflammation—that there is structural change—and if you push on the means for remedying inflammation actively, you will only break up the constitution, though if you find pain and tenderness it may be necessary to bleed either by cupping or leeches—

to exhibit mercury, and order low living. It is often necessary to support the strength well, and even to give him stimuli to enable the patient to bear up against this organic disease.

You may sometimes make out organic diseases of the liver very well, by the edge of the liver being well defined, running across, and being hard, and even sharp. You will sometimes find that the easiest way of finding an indurated liver is by putting your hand over it and suddenly bringing down the fingers. Frequently the liver is an inch or two from the surface, and if you press regularly you may not feel it, but if you press the integuments down upon it you may feel it directly, and occasionally you may discover tubercles in the liver.

I have seen large livers reduced by the internal application of hydriodate of potassa, and also rubbed externally over the indurated part. Livers reaching below the umbilicus have been reduced by the steady use of iodine, and sometimes of iodine combined with mercury. But mercury should be given carefully; you should support the patient well, because the dose that will do good tends also to impair the constitution; iodine, however, may be made to do good without injuring the patient. Aloes may perhaps be serviceable.

On examining the liver after it has been in a state of common inflammation, you will generally find the peritoneal convex portion of the liver inflamed. There may be red points, lymph, and serum, upon it, and the peritoneum may be thicker than is natural. In chronic hepatitis you will find adhesions and the bands very strong. Sometimes there are white patches on the surface of the liver, and the peritoneum will become white, opaque, and soft. There is usually great redness if the substance has been inflamed, and it is enlarged from the quantity of blood it contains. Sometimes the redness is only partial, and then the liver looks almost mottled from the red plates mingled with the naturally pale parts. Generally when the liver is cut a large quantity of blood is poured forth, and the liver frequently suffers congestion without inflammation; there is great congestion of blood in the liver in purpura. After asphyxia, chronic bronchitis, all diseases of the heart, and all obstructions to the course of the blood through the heart or lungs, you will find the liver very turgid, the blood pours forth when you cut it, and the vessels look like sinuses. In infants who have been asphyxiated at birth, sometimes the congestion of blood in the liver is so great at that portion under the peritoneal coat, that sometimes it will burst through it into the abdomen. Sometimes, in inflammation of the liver, there is hæmorrhage into the substance of the organ, and sometimes the blood will rupture it. I presume that there has been some softening previously. You may see a great mass of blood, or several little collections of it; sometimes coagulated, sometimes not; occasionally it is in the vessels, and other times it is not, according as it has oozed from one or several.

CHRONIC DISEASE OF THE LIVER.

Of course you remember that the liver consists of two parts; the one red and sanguineous, and the other white or yellow, containing bile,

which are not divided. Now, occasionally, hypertrophy occurs in the red portion of the liver only, so that the organ is enlarged and red, and sometimes the bile tubes are all in a state of hypertrophy, so that the liver is enlarged and pale, or pale without enlargement. The red part is atrophied, the vessels shrink, and the biliary part is hypertrophied, indurated, or remains as it was; but as it preponderates over the red portion, the liver appears pale. Now these changes occur either throughout the liver, or in spots, so that you may have the liver firmer and redder than it should be; here and there, and in other instances, the biliary portion is hypertrophied, here and there giving it a mottled look. Sometimes the hypertrophied portion gives you the appearance of white lines running along it, and sometimes of granules, varying in size from pins' heads to hazel nuts. Now, anatomists differ as to which was called gin liver, and which is the commonest of all diseases of the liver. Dr. BAILLIE and others suppose them to be minute yellow tubercles throughout the liver; and ANDRAL imagines that it is mere hypertrophy of the biliary portion. CRUVEILHIER has given a good delineation of this disease, and has called it a small brown tubercle. Perhaps an alcohol liver would be the best name for it; because it occurs in spirit drinkers (whether of gin or brandy), in one country as well as another. I presume that the continued use of alcohol, induces a chronic change of the biliary portion of the liver, causes it to become hypertrophied, and causes it also to become indurated.

This morbid change occurs sometimes more in one lobe than another. Sometimes the liver is increased altogether; sometimes decreased, and it generally feels very hard on the external surface. Often it is indurated in particular portions; but on the whole wasted. I think that most generally, a gin liver is bright yellow, and that there is more or less of ascites. The peritoneum over the liver is generally diseased; it is particularly opaque and hard.

The liver, perhaps, is most liable to become fatty; it sometimes gets very fat. Naturally, the liver contains fat and cholesterine, and these matters will sometimes exist in a great degree.

When the liver becomes fatty, it is usually soft and flabby; sometimes it is greyish or whitish, and so much fat is deposited, that it greases your fingers; and in the fattest parts, there does not seem to be any blood. This will of course affect either the whole, or portions of the liver. This state is frequently united with phthisis, and is seen continually, without the person having been addicted to drinking, or having imbibed any bad habits. It also occurs often in young persons.

The liver is also subject to encephaloid disease—to fungus hæmatodes. This is much more uncommon than any of the before mentioned forms of disease; but when there has been fungus hæmatodes in the extremities, then a collection of this nature very commonly occurs in the liver. Occasionally, I believe, encephaloid tumors are formed in the liver without the disease occurring in other parts. These tumors are white, and there are bumps of various sizes exist-

ing, some near the surface and some towards the centre of the organ; and when you cut them, you find them to contain a brain-like substance.

The liver is also subject to scrofula. White scrofulous tumors occur from time to time in the liver. The encephaloid tumors look just like them. The scrofulous disease is sometimes mixed with encephaloid matter, and sometimes scirrhus will be mixed with it. I have frequently seen in other parts scirrhus, with scrofula deposited in the neighbourhood.

Occasionally, melanosis exists in the liver—the flesh deposit, of which I formerly spoke, as to the size which the liver may attain. Mr. Gooch, a surgeon, mentions that he once saw one weighing twenty-eight pounds. I have often seen it reaching into the pelvis. Sometimes a liver thus enlarged has caused no suffering at all; the patient has never complained of pain, but has felt weak, and has wasted a great deal. This happens particularly in women. I have frequently examined women in this state, who during life were not known to have disease of the liver; they never drew attention to the abdomen, but merely said they were weak. It shows the necessity when you cannot understand the patient, of having them in bed, and examining them from the throat downwards over the heart, lungs, and abdomen. In that way you will continually meet with something which was not in the least apprehended.

The liver and the kidneys are the two organs of the body which are most subject to the formation of hydatids. The true animal nature of these hydatids has not, I believe, been pointed out in the human subject; but in sheep they have been observed to have a contractile power, and the appearance of the two is so much alike, that one must suppose them to be real hydatids. They are sometimes within each other like pill boxes; sometimes they are attached to each other by peduncles from within, hanging one within the other; and sometimes they grow to the outside of each other. Sometimes they are attached to the liver externally. Sometimes they are found in the middle of the substance of the liver; but generally they are enclosed in a cyst, which is usually hard, even cartilaginous. I believe they have some laminæ—two coats; and when they are dead, they have no longer a globular appearance, but are like so many skins, or so much half-dried mucus. In sheep, I think they have a neck and a mouth.

I had a very remarkable instance of this kind in a lady, who had laboured under chronic hepatitis for fifteen years, and at last she began to cough and spit hydatids, and died. On opening her, I found a large cyst of these hydatids attached to the concave portion of the liver on the right side. There was another one filled with them in the middle of the liver. Ulceration occurred, and they made their way through the diaphragm, the cyst emptying itself partly into the air passages. The irritation was so great under all this, that she died.

Worms have occasionally been found in the human liver; and

a lumbricus has been found in the ducts ; but I should rather think it was a wanderer, that it was not a native ; but that being on its travels from the intestines, it lost its way.

You can treat these diseases only upon the common principles of inflammation, and endeavour to invite absorption by means of iodine and mercury, and support the patient's strength. You cannot distinguish the greater number of them during life. You can tell that there is organic disease ; but you cannot say precisely what organic disease it is. If you have seen fungus hæmatodes, or scirrhus, in other parts of the body, you may suppose the disease to be of that nature.

The next disease of the liver of which I will speak, is one in which the secretion, instead of passing out properly into the intestines, is absorbed, enters into the blood, and tinges the skin and the urine yellow. This disease is commonly called jaundice, from the French *jaune* ; in brutes it is called the yellows ; and in medical language *icterus*, from its likeness to the plumage of the golden thrush. You will find it termed in Latin *morbus regius*—the royal disease ; and the reason given for this by many writers is, that persons require in this affection all kinds of amusements, which none but kings or royal persons can command. It is also called in Latin authors *morbus arcuatus*—from the patient having the various hues of the rainbow. You will also find it called *aurigo*—which I presume arises from *aurum*—gold. The word *icterus* is said to be the name of the golden thrush, by looking at which the disease was to be cured. You know that it was common in ancient nations, for the cure of disease to be attempted by looking on certain things, and they fancied, when labouring under this disease, that if they looked on the golden thrush, the bird would die and they should be cured.

The word jaundice is a simple and very fine name for yellows. In the case of poor people, it is called the yellows ; but if a lady have the disease, it is called the jaundice.

This disease is marked by yellowness of the skin, conjunctivæ, roots of the nails, and urine, and by the paleness of the fæces ; but this last does not always, though it generally does, exist. The parts which are first seen to be yellow, and remain so longest, are the roots of the nails, and eyes, from their being by nature so very white, that one discovers the least yellowness. The yellow may be bright, dark, or green ; and some persons are dark olive, bordering upon green : and therefore sometimes you hear of green jaundice. If a person be naturally swarthy when labouring under green jaundice, he looks very dark, and then they say he has the black jaundice ; so that you have green yellow, and black yellow. It is a contradiction of terms ; but it shows the variety of hues under which the disease appears.

Occasionally, patients have seen yellow. Some maintained that this always happened. Dr. PEMBERTON says he saw this occurrence twice, and that in both cases the jaundice was not very intense ; on the other hand, you will continually see intense *icterus* without any yellowness of the vision. HOFFMAN says also, that twice he saw patients who declared that everything seemed yellow. Now, two of

my patients labouring under jaundice, made the same statement. In July 1826, I had a case of icterus in the hospital, where there was albugo of each eye, particularly of the left; and into this eye two large red vessels ran, and with it the patient saw yellow; but the right eye, which had no inflammation before the cornea into which no large vessels ran, saw things in their natural colour. In 1827, I had another hospital patient, who saw yellow with both eyes, and in him, the conjunctivæ immediately around the cornea, quite at the edge of the orbit, was greatly inflamed. I remember seeing a patient labouring under jaundice, who says, that at the beginning of the disease he saw yellow. He did not know whether his eyes had been inflamed; but there are several large vessels running not quite to the cornea, but pretty close to it. The patients see yellow from the serum of the blood being conveyed before the pupil, through the cornea. In the second case which I met with of this occurrence, I was prepared for inflammation of the eye, by having noticed what I did in the first case. I looked carefully at the man's eye, the moment he told me he saw yellow; and I found, as I expected, that it was inflamed. Whether this will be always observed when patients see yellow, I do not know; but it affords an explanation of the circumstance, and is worth investigating. If you blister a person labouring under jaundice, the fluid from the blister is yellow, and the serous fluids within the body are found of the same colour.

The blood of jaundiced patients is loaded with bile. HUNTER thinks that the artificial mixture of blood with bile, produces coagulation; but I think that a quantity of bile, infinitely too little to affect a coagulation, may be sufficient to tinge the serum.

Besides these visible symptoms in jaundice, there are several others. Patients generally complain of languor, and very often of drowsiness; but still more frequently of a dead weight at the epigastrium, and tenderness at the hypochondrium, and sometimes of actual pain; in fact, this disease every day occurs in conjunction with hepatitis, and is often merely a symptom of it. There is frequently loss of appetite, nausea, and vomiting; and there is one curious symptom in the disease, which is very common, and that is an itching of the whole surface; and people say that they could tear themselves to pieces.

Jaundice occurs both in young and old persons. In infants it appears to be produced from very slight cause, and it is cured very easily. Generally it is a slight disease, arising from slight causes, and may be cured by slight remedies.

You will sometimes see yellowness of the skin, not as the result of jaundice, but in fever; viz. that which is called yellow fever. The yellowness is not usual in this case; it occurs particularly about the neck, and appears to arise rather from a disordered state of the blood, or an altered condition of the blood as to some of its constituents, precisely as we see it in bruises which may be yellow. Often a certain portion of the blood has been absorbed, from an echymosis, a degree of yellowness remains; but that is not jaundice; it appears to be produced from some portion of the blood being absorbed, and

other portions left. Occasionally, after the bites of certain serpents, and the infliction of wounds by the bite of certain animals, the skin becomes yellow; but this does not appear to be jaundice.

Some people appear to have a constant predisposition to this disease; and it may be hereditary. Persons who have been in warm climates, are much more predisposed than others.

The exciting causes of it are anything which will produce inflammation and congestion of the liver. It will arise, not only from cold and wet, and long continued heat; but also from the suppression of a discharge, by which a congestion of the liver will take place. It will arise from everything which will cause even a mere excess of bile; for occasionally the *fæces* are not white in the disease. Bile passes into the intestines; but so much is secreted, that all does not escape, and a portion goes into the blood. Malaria seems to have a tendency to produce it in hot climates, and in the hot seasons of other climates. Persons exposed to malaria, are very subject to have a degree of jaundice, and other hepatic affections, among them.

Any pressure on the parts through which the bile is conveyed, will produce it. Mere costiveness has been known to give rise to it. Tumors occasioned by an enlarged pylorus, or head of the pancreas—tumors of the omentum—diseases of the liver (if a portion of the liver becomes rather indurated, and perhaps rather hypertrophied; the bile may be obstructed in the liver itself)—the lodgement of a calculus in the ducts, are also common causes of this disease. Sometimes pregnancy causes it. I have frequently seen jaundice in pregnancy; not however as the result of pregnancy, but of hepatitis; which disappeared under the treatment of common inflammation, while the pregnancy went on. It is supposed that it may be produced occasionally by thick bile; but if the bile is found inspissated, that is no proof of its being the cause, rather than the effect, of the jaundice. It has been caused by a lumbricus sticking in a duct of the liver, which I mentioned when speaking of organic diseases of the liver. If the ducts become thickened by chronic inflammation, their cause may be so much lessened, that the bile cannot easily pass, and consequently you have jaundice. I have seen jaundice from a great many of these causes; and in 1829, I saw a case in which it arose from a great number of fatty deposits all around the ducts, and these are sometimes impervious from original malformation. The disease would appear to be sometimes produced by spasm. Some persons, on eating certain articles, have been seized with violent pain at the pit of the stomach, and an attack of jaundice has appeared the next day. It has been produced from mental causes—from fright—from long grief and anxiety of the mind.

Obstruction of the ducts causes, generally, their enlargement; and Dr. HEBERDEN is said to have seen them an inch in diameter. I have, however, opened several who have not died of jaundice, but with it; in whom I found no obstruction whatever; and Sir JOHN PRINGLE mentions that a surgeon told him of a case of jaundice, in which there was no obstruction, but in which the slightest compres-

sion caused the bile to flow ; and ANDRAL says he has seen the same thing.

This disease may be artificially produced by opening the abdomen and passing a ligature round the intestine, a little below the ductus communis choledochus. PORTAL tried this on six dogs, and they all became jaundiced. If the lymphatic duct be tied, the same circumstance will occur ; and the absorbents of the liver have been seen, after such an experiment, to become loaded with bile.

It has been said, however, that the blood from the lymphatic veins was found, in such an experiment, to stain paper yellow much more so than the blood from the choledochus. It was once doubted whether in jaundice the bile found its way to the blood by means of absorbents or by regurgitation to the veins. It was also supposed that the veins would absorb. Before the absorbents were discovered it was thought that the veins performed that office ; but afterwards no one would allow that they would absorb at all, and now again it is said that they do absorb. While it was believed that the veins did not absorb, some contended that in jaundice the absorbents took up the bile, and others that it worked its way into the veins. Experiments were then made, and it was observed that the absorbents of the liver were loaded with bile, and that the lymphatic veins were more tinged with it than those of the jugular. If the veins absorb as well as the absorbents properly so called, we may suppose that the greater portion of the bile which found its way into the whole system of blood having passed through the lymphatic veins, those veins would contain a greater portion of blood than any others.

The prognosis of this disease—must wholly depend on the cause. Jaundice is most generally only a symptom of some disease ; and the prognosis must depend entirely on the nature of that disease. Some are very ill in jaundice and die with it ; others labouring under it, have little indisposition—they scarcely know that they are ill ; they only look very yellow. In that form of jaundice in which the yellow verges to green jaundice—recovery is very rare. When you see any one labouring under jaundice, who, notwithstanding his eyes are yellow enough, yet whose skin is of an olive hue, you may, without asking a question, fear that he will not recover. Dr. BAILLIE says that he never saw but two persons recover from green jaundice, as in this there is generally some organic disease of the liver—either of the whole or of a portion of it.

This disease sometimes lasts a very long time. The fæces are generally white, but they are often seen very pitchy in green jaundice, and very often they are billious. He says that there is but little pain felt, that ascites seldom occurs, and that he seldom knew it arise from intemperance ; and the reason that he assigns for the latter circumstance is, that it so frequently occurs in women : some women, however, are intemperate enough. He considers it as a symptom of something which is fatal.

Dr. CHEYNE says, that if the jaundice be saffron-coloured in children it is fatal—but it is generally trifling in children. Mr. J. PEARSON, a surgeon of great practice in London a few years ago, says that he

knew a family where there had been eleven children, ten of whom died of jaundice within the month, the disease having begun a few days after birth and that the eleventh died of the disease at six years of age, evidently showing the hereditary nature of the disease. I do not know what caused it in this family.

In treating jaundice you must first consider whether it be a case of hepatitis; and if so you must treat it on the common principle of hepatitis in proportion to the strength on one hand, or to the weakness on the other. Mercury, so as to affect the mouth, answers best as a purgative in these cases. In mild cases, where only congestion of the liver exist, the disease will yield to common remedies, and often will get well of itself; but if the disease be more severe you should employ mercury, and perhaps to bleed in the arm.

The disease may be characterized more by spasmodic pain than by inflammation; there may be more occasional pain at the pit of the stomach or on the right side, than constant pain and tenderness, and then the hot bath and opium are among the best means. But if in such cases as these the patient's pulse be quick and strong constantly, and there be general tenderness also, one of the best antispasmodics is bleeding. It will be more effectual and much better to combine the opium with a full dose of calomel, which will prevent constipation and will produce a free discharge from the alimentary canal. In these spasmodic cases you should give ten or twelve grains of calomel and a few doses of opium; perhaps two grains or more; a poultice over the part is also very useful.

Now this sudden pain with jaundice is no proof whatever that the case is one of gall-stones. Many persons when there is no jaundice at all say that when a patient is seized with sudden pain at the pit of the stomach, they have gall-stones; and if in addition there be jaundice, they are sure of it. But mere spasm of these parts will produce this violent pain and perhaps giddiness. You may suspect that there are gall-stones, but frequently you have all the symptoms without it, and you cannot say that a person has gall-stones unless you see them pass or they have been discharged. When you consider that from eating something which is indigestible a person will be seized with violent pain at the pit of the stomach, and the next day will have an attack of jaundice, you see plainly that this occurrence may be produced without the presence of gall-stones, you see that it is obviously caused by something which has irritated the parts.

But the disease sometimes becomes chronic; and when you find no more pain, no tenderness on pressure, to make the patient move about—to make him take free exercise, have the parts well rubbed, to recommend the use of the warm bath, and also to exhibit mercury, so as to produce a mild affection of the mouth for sometime together with the free use of purgatives. The disease will frequently go away by these means, the parts seem to fall into an atonic state.

If in spite of all these means the affection still continues, you will generally have reason to suspect disease of the liver. If you find induration or enlargement of the organ, or a degree of any kind of dropsy—if persons waste more and more, and especially if you find

the yellow getting green—then you must form an unfavourable prognosis, and suspect disease of the liver. In the case of enlargement and induration it is pretty well proved, and then the remedies for diseased liver should be employed—setons over the part, and exhibition of iodine, and you must keep up the patient's strength as well as you can.

VAN SWEITEN says that he persuaded a poor man, in an obstinate case of jaundice, to live upon grass for two years except during that part of the winter when there was none to be got. He made him eat the tenderest grass which was in flower, and also that which was first mowed. At first the man rather disliked this diet, but in time he was well satisfied, and could easily distinguish the best pastures by the flower of the grass; and at last he became a general nuisance to the farmers, for they found he had such a large appetite that they drove him first from one field and then from another. This is VAN SWEITEN's own account: he says that he was obliged to eat his diet secretly, for the farmer finding he had so large an appetite often gave him a quick repulse—the man however was quite cured.

GALL-STONES.

It may be well to say a few words respecting gall-stones, we can do nothing to dissolve them, but we may mitigate the patient's pain when they are passing. It is said that when they pass, the pulse frequently becomes slow instead of increasing as in inflammation. I believe that this generally happens, but the same circumstance will occur in a case of pure spasm. Sometimes, however, the pulse is increased to above a hundred, there is sudden pain at the part, and vomiting; sometimes there is great pain, which is relieved by pressure—it is mere spasmodic pain. There is no increase of temperature, and the treatment will be the same as for spasm, because you cannot say whether there is a stone or not, but if the patient, have passed gall-stones before, and the same symptoms occur again, you may then say that they arise from gall-stones.

Now these stones are found in the liver itself, they are found in the gall bladder, cystic duct, and choledochus. If they exist in the cystic duct, of course they will not produce jaundice except they happen to be so large that they press upon the choledochus or hepatic duct; but though they will not produce jaundice, yet they will obstruct the course of the fluid from the gall-bladder, and it will become very much distended by its own secretion. I have seen a specimen where, from the cystic duct being obstructed, the bladder went on secreting mucus till at last there was dropay of the part; but no obstruction of a simple duct can produce jaundice. There must be an obstruction of some of the ducts of the liver in the hepatic duct or in the choledochus, but they are found in all parts—not only in the cystic duct, but in the gall-bladder itself.

Gall-stones are seen of all sizes, from mere grit to that of the gall bladder itself. Gall-stones will often pass without any pain at all, because I have found them in the motions without any pain having occurred. If they are very large they will occasionally produce no

pain, provided that they lie still, and do not attempt to escape, but if nature try to get rid of them, the pain is very great. Dr. HEBERDEN mentions that a stone was found in the gall bladder of Lord BUTE, the preceptor to GEORGE the Third, which weighed two drachms, and yet caused no symptoms: they were surprised to find the stone there.

The quantity of them will vary from one to an immense number. Dr. BAILLIE says that a thousand have been found at once in the gall-bladder, and the preparation is now to be seen in Dr. HUNTER's collection—the bladder, is crammed full of them. I once found in the gall-bladder of a patient at St. Thomas's, between three and four hundred, which gave rise to no symptoms during life, and he died of a different disease. It is very common to open persons who have died of diseases unconnected with the liver, who have never complained of a pain in the side, and yet to find several gall-stones. These biliary stones are sometimes rough, sometimes smooth. They acquire a smooth and also an angular surface from rubbing against each other, so that they have a sharp corner and edges, though the surface between be perfectly smooth. Those in the centre are generally oval; and Dr. BAILLIE says that he saw one the size of a hen's egg. They will pass through the ducts even when very large, for the ducts will dilate incredibly. We know that the female urethra may be dilated so that a large stone may be extracted from the bladder without an incision. A very large calculus has been known to pass through the ductus communis choledochus without ulceration being discovered after death. Sometimes, when the stones are large, they will escape by an abscess either externally or internally. Adhesions will occur externally between the gall-bladder and parietal peritoneum; an abscess forms and the stone comes out through the abdominal parietes; but more frequently adhesions take place between the bile passages and the intestines and they escape that way, so that they are discharged by stool.

It is astonishing how large a size a calculus may obtain, and yet be discharged, and the patient do well. A calculus two inches and a quarter long, three and a quarter in circumference, and weighing one ounce, two drachms, twenty-three grains, was discharged from a person who lived and did perfectly well after it; this is stated by Dr. JOHNSON. Dr. PEMBERTON says that a stone has been discharged two inches and a quarter in length, and one and a quarter broad. In the medical Gazette for March 1828, there is an account of one an inch and three quarters long, three and a quarter broad, and which weighed twenty-seven grains. A stone measuring an inch and three-eighths in length, and three and three-eighths in transverse circumference, is mentioned in the MEDICO CHIRURGICAL TRANSACTIONS; it had passed by ulceration, but the person died. One of an inch and six-tenths long, and one inch and one-tenth in breadth and transverse circumference, which was expelled and the patient recovered; but as it went down it stuck in the sigmoid flexure of the colon and there gave all the signs of strangulated hernia. Before it escaped from the intestines it did serious mischief, and yet there had been no suffering previously; it was not known that the cause of the disease was a stone.

These calculi are oftenest found in the gall-bladder itself; next to

that in the cystic duct; next to that in the choledochus, and next to that in the hepatic duct; there is no doubt therefore that they are generally found in the gall-bladder itself.

Some of these calculi are white, others are black; some are black outside and white internally; and some have a shining and semitransparent fracture.

Some of these calculi seem to be nothing more than inspissated bile, and these are bitter to the taste, soluble in water, and burn to a cinder, but the greater part of the biliary calculi are oleaginous, and if you melt them they will inflame and burn like wax. The shortest way is, to scrape them a little, and they will soon melt. Some are resin, some are cholesterine; and some are picromel.

Now those kinds which burn like wax are of a greasy character, and laminated within, and frequently crystallized. Sometimes, however, they are oleaginous. Sometimes however there are crystallized radii passing from within outwards. Occasionally they are a mere amorphous mass: now and then they have been found to contain phosphate of lime, but it is doubtful if in these cases they are biliary concretions. Two cases of this kind are related by ANDRAL but there had been such obstruction that no bile could have entered the gall-bladder for some time. The cystic duct was obstructed, and it appears to have been rather a secretion of the inner surface of the gall bladder, just as stones may be found in the urinary bladder.

Ulceration rarely occurs in the gall-bladder. Sometimes it is very thick, sometimes it is hypertrophied, and it has been known to be completely ossified. Sometimes it will waste away, sometimes it will have tubercles in it, and sometimes there are hydatids in its substance now and then it has been ruptured. A woman came once to St. Thomas's hospital and fell down dead, on opening her the gall-bladder was found to have suddenly ruptured; death, I was told, occurred instantly.

DISEASES OF THE STOMACH AND INTESTINES—NATURAL APPEARANCES.

You are to remember that if you examine the inner surface of the stomach and intestines of a living animal that is making no effort at all, so that its circulation is perfectly free, it is rather redder than the inside of the cheeks. In some animals, after death you will find the mucous membrane pale or at the utmost only slightly coloured, but here again much depends on the mode in which the animal dies. If you kill it by asphyxia these parts will become very red or dark, and there will be great congestion of blood; but if you kill the animal by hæmorrhage these parts will look paler than they were during life.

The inner surfaces of the body are liable to exactly the same changes of colour as the external. If a person die from strangulation the surface of the body will perhaps be of a dark more or less red colour, whereas if he bleed to death, he will become pale.

Now, if we look at the stomach during digestion; or if we look at the upper part of the inner surface of the small intestines during chylicification, when their great function is going on, we shall find the

partæ redder than at any other time. This, of course, will occur at different periods of the day, according to the longer or shorter time that has elapsed since food was taken in at the mouth. Any obstruction to the return of the blood will make these parts red, and perhaps darker than they should be. Hæmorrhage may take place from the inner surface of the stomach, or of the intestines, from the great accumulation of blood; and, as impediments to the circulation are very common just before death, you, more frequently than not, find these inner surfaces red and dark-coloured—at least partially. I believe I mentioned formerly, when speaking of the deceptive appearances with regard to inflammation, that you may produce these changes at your pleasure, accordingly as you examine a body a longer or shorter time after death, having first placed a certain part in a dependent situation, so that the blood may gravitate in a certain direction. If you do this with regard to a certain portion of the intestine, and allow a long period to occur before you examine them again, according to the length of that period—*cæteris paribus*—the situation of the parts, and the quantity of blood in the body, you will find them darker.

From the natural arrangement of the parts, you will generally find that those portions of the intestines which are in the pelvis are darker than the others; and the posterior darker than the anterior portion of the stomach, merely from the gravitation of the blood, and of course the appearance will be darker and darker, according to the length of time before you make the examination. If the examination be so much delayed that decomposition occurs in any degree, and the blood is allowed to transude from the blood-vessels through the different coats, you will see extensive patches of red, and stains along the course of the veins, just as you observe along the external surface; and if a still longer period expires, you will have all the parts red together. If the blood completely transude from the vessels it will dye the whole substance, and from the solid portions being decomposed—melted down into a mass—you will find more fluid than the blood itself will afford.

In persons in whom the intestines have been diseased during life, they are paler lower down than higher up. They are also pale in youth, and in the young adult period; but in the *fœtus* these parts are rosy, and in old age they are of an ash colour, and not only so, but the veins are seen to be very large.

But we must remember that the thickness varies; that the mucous membrane is naturally thickest in the duodenum, and thinnest in the colour; and that the mere circumstance of an accumulation of blood just before or after death, will cause it to appear thicker than it should be, without any disease of that particular part, while it always appears thinner in persons who die in a state of *anæmia*, who are bled to death, or who have not rallied a little for some time before death, or who die suddenly emaciated. There is a great difference also in the consistence of the mucous membrane in different parts; generally those which are thickest are also firmest by nature.

The mucous membrane will be always thicker and more consistent

in health, at the pyloric end of the stomach, than at the other extremities; and it is a natural occurrence for the mucous membrane to peel off in the largest portions from the inner surface of the stomach.

The consistency of the mucous membrane varies according to the time at which you make the examination; it always becomes less in proportion as time elapses after death, and more particularly if the surface of the stomach be exposed to the air.

It also varies exceedingly according to the quantity of gastric juice that the stomach contains, for it will soften the whole stomach as well as the inner surface. This state is frequently seen in persons who have died quite healthy, from mechanical or any violence, not ailing till the moment of death; whereas, in persons in whom you would suppose such softening might occur from disease, you do not find it. It has also been found that in these circumstances all the coats of the stomach have been softened, and even perforation has occurred, and still further effects have been observed in the viscera by its immediate contact with the part in which perforation took place. HUNTER supposed from this, that the gastric juice will only act on dead animal substances, and therefore will act on the stomach when dead. When this was first promulgated it was doubted,—it was afterwards believed; but many French writers again doubt it. Though I believe we have no good reason to doubt it, when you consider that the parts of the stomach which the fluid touches are softening at the same time, and this softening particularly takes place at the posterior part where the gastric juice must have chiefly gone. Thus there may be considerable morbid appearances simply from the effect of the gastric juice; at least, it is considered that when the stomach is softened, whether the individual was healthy before, or died from an affection of the stomach; and whether it be at the posterior end of the stomach or not, and whether the parts are nobbed off or not at the perforation, we may say that the appearances are the effect of death alone. Many morbid appearances in the intestines, particularly in the mucous follicles, take place. Now we must remember that, proportionately, the mucus follicles are more distinct in children than in adults; in fact, in healthy adults they are not particularly seen except in the cæcum and duodenum, and sometimes in the lower portion of the ileum; but in children they are generally distinct enough through the length and breadth of the intestines. These mucous follicles are often seen to be very large after diarrhœa and other diseases, which are attended by an irritation in the alimentary canal; but sometimes they certainly are very large without our knowing that the individual had suffered any previous disease of the alimentary canal.

Inflammation may exist in the alimentary canal, and leave no mark after death. The bleedings which were instituted, may have taken away the redness and left the part quite pale, although life was destroyed by the disease, and sometimes by the remedies; yet the disease may kill, and there may be no redness discovered after death. A similar occurrence takes place on the surface of the body when patients have had erysipelas at the time of death. It is not uncom-

mon to see the parts far less red than during life, and perhaps they are not red at all. Again, redness may exist in all these parts without any inflammation; it may be the result of decomposition, or some mechanical impediment. If the redness be of an inflammatory nature, or if it have been produced by inflammation, it ought to exist in the minute vessels; but redness may exist there from mechanical obstruction. If the redness occurs only in the larger vessels, it is mere congestion, which may arise from causes independent of inflammation. If there be mere over-distention of the large vessels it ought also to exist in the minute, to constitute inflammation; and even if it does, that is not sufficient reason for its being inflammation. In inflammation the small vessels are first overcharged, and ultimately the large; but in mechanical obstruction the reverse occurs.

Now the redness may affect the mucous membrane simply in its continuous surface; it may affect the villous coat, the follicles, or two or three of these parts together. If the villous coat be affected, you have simple red points, and you chiefly find this inflammatory redness in the stomach and lower part of the ileum. This redness is of all degrees of shade. The villous coat may or may not be transparent. If the follicles be inflamed and red, there are frequently red circles around them, and perhaps also on the summit; then if these widen and form a border, then the follicles will be of a uniform redness.

Hypertrophy sometimes occurs in the mucous membrane, and sometimes it is indurated, and will peel off in large portions. If this occur at all, it will certainly be found in the stomach and large intestines. When hypertrophied, it is sometimes as smooth as usual; but sometimes it occurs very partially, and the membrane becomes exceedingly rough; it is polished enough, but has elevations and depressions. Sometimes the hypertrophy is so great, that portions project into the canal. When hypertrophied, the degree of colour and consistency is various. Sometimes with hypertrophy there is great irritation and accumulation of blood. Sometimes the villæum will be hypertrophied, and sometimes only the follicles will be enlarged. When the latter takes place, sometimes the orifices of the follicles will diminish, and if so they will close, or nearly; and then the secretion accumulates beneath, and dropsy occurs. If the contents happen to be solid, you cannot apply the word dropsy; but the follicles are distended with a soft, thin, curious substance. Occasionally, the mouth of the follicles increases very much; sometimes by ulceration, and these are generally seen at the lower part of the ileum where the ileum ends in the colon.

Sometimes it is the cellular membrane, under the mucous membrane, which is hypertrophied; and occasionally it becomes very bulky, or very hard, and falls into a state of scirrhus—which is a specific induration and hypertrophy, and becomes as hard as cartilage. Sometimes when it has begun there, the membrane on the other side becomes hypertrophied also; but I believe that when scirrhus affects the alimentary canal, it is the cellular, under the mucous membrane, which is first attacked. The other coats will sometimes remain healthy for a great length of time, but hypertrophy, ulcera-

tion, and other diseases may take place. This particular affection of the subcellular membrane is very commonly seen at the pylorus, but it seldom occurs till after the middle period of life. The orifice of the pylorus often lessens, and the stomach behind frequently acquires an immense size in this case. If true scirrhus occurs in the small intestines, the orifice of the intestinal canal will be diminished, and stricture is the consequence. Stricture may occur from other causes, but this is by far a more frequent cause of it. This change is rarer in the small intestines than in the stomach, and rarer in any part of the large intestines than in the rectum, which comes next to the stomach in frequency of this affection.

The alimentary canal sometimes becomes atrophied—the coats become thinner and thinner, so that the alimentary canal becomes quite transparent. Atrophy most commonly occurs at the splenic end of the stomach, and next to that, at the lower end of the ileum.

Softening also will occur, and the mucous membrane is often at the seat of this disease, and it will become quite pulpy. There are all degrees of softness, till it is absolutely lost, and the disease exists in various directions. When the mucous membrane becomes softened, sometimes the colour is quite natural, sometimes pale, sometimes dead white, and sometimes blue. The change of colour in the intestines is sometimes from the loss of vital energy, and sometimes it is the result of inflammation. This softening is very common after chronic diseases; and sometimes where we find this to be very great, there has been nothing more than anorexia, loss of appetite, and some degree of indigestion. It is common to find this state where persons have been dyspeptic.

Occasionally, this affection is acute, takes place rapidly and suddenly; and sometimes it seems to be a very chronic change. When it is acute, there is generally a red tongue, and vomiting; but sometimes I have seen it where the patient, a short time before, was in perfect health. The same circumstances have been observed, both with regard to the stomach and intestines. Sometimes, in the case of the intestines, the disease follows diarrhoea.

Now, this softening may, though it is commonest in the mucous membrane, extend to all the coats; and the intestines, though at first sight they appear healthy, be like so much jelly. This general softening of the stomach is most frequent at the splenic end, and I presume that very frequently it is the result of the operation of the gastric juice; but that, I imagine, is only one cause of the disease. In these cases you may brush the membrane all away. This softening is not to be ascribed to any decomposition of the part. In the case of the stomach, no doubt it will arise from the gastric juice; but if it occur in other parts of the alimentary canal, it must be supposed to have taken place during life; for the intestines do not become soft by decomposition unless a considerable time has elapsed.

Some experiments have been made on the effect of the gastric juice in producing this softening—animals were examined before pulse and action had taken place, and the softness was seen in many cats and dogs, so that it appeared to arise from the gastric juice;

there was not more softening in those which were allowed to putrify. The fluid taken from the inner surface of the stomach of two children who had died with this softened state of the mucous membrane, was introduced into the stomach of some dead adults, and it soon caused a solution of the solids; whereas, when it was put into the stomach of a live rabbit, it had no effect. I consider this as a great confirmation of JOHN HUNTER'S opinion—that this softening of the stomach is mainly attributable to death. But it is said, that if the eighth pair of nerves were divided, so that the powers of the stomach were impaired, then the gastric juice softened exactly as it did in dead animals. If these experiments are correct, they were extremely curious. Inflammation, without doubt, causes sometimes common softening of the stomach and alimentary canal, because we see symptoms of gastritis during life, and marks of inflammation after death. But you often see gelatinous softening of the stomach in children who have not suffered from inflammation, but who have been in a general ill state of health—who have been weaned when not able to bear it, and have not been supplied with proper food afterwards. Thus it appears occasionally in a cachectic state, and very often the parts all around are perfectly healthy.

Ulceration is generally found in the two lower-fifths of the ileum; and with respect to the large intestines, it is seen more frequently in the cœcum than in other parts. It is seen oftener in the stomach than in the jejunum, or duodenum; but it is seen in all parts of the ileum more frequently than in the stomach, and in all parts of the large intestines than in the two upper fifths of the ileum. This ulceration may exist in the centre of inflammatory spots, or red patches. Sometimes we find diffused redness. A long tract of the intestines will be red, and we find obscure ulceration here and there. Occasionally, ulceration occurs in parts more or less melted down, and frequently it takes place in hypertrophied follicles—both the solitaria and aggregate. When the solitaria enlarge, and do not discharge their contents, they become distended, and are more or less firm, so that they acquire a conical appearance; they then lose their conical form, and have a central depression on their tops exactly like a variolous pustule. Their orifices sometimes simply enlarge, sometimes they ulcerate down merely to the level of the mucous membrane, and sometimes they ulcerate below it, and then if they run into each other there is a frightful ulceration. Ulceration may go on till the alimentary canal is perforated. Ulceration may be acute or chronic: occasionally we see ulceration in the midst of gangrene, which last is rare in these parts. Sometimes there is ulceration of scrofulous tubercles. Scrofulous tubercles are deposited under the mucous coat in the cellular membrane. In this situation they will enlarge, ulcerate, and go through the same process as in the lungs. Sometimes, though rarely, you find them ulcerate outwards towards the peritoneum—generally they ulcerate through the mucous membrane into the intestines; this is sometimes seen in phthisis. There has been a minute abscess in the cellular membrane under the mucous, and the latter has ulcerated through.

Ulceration seldom arises from acute gastritis, but is the result of inflammation of the intestines. The ulceration is sometimes solitary; but sometimes there is an infinite number; in the stomach, however, they are seldom numerous. They are of all sizes, and they take all directions. Sometimes the edges are natural, sometimes very thick, sometimes very hard, and sometimes very soft.

The nature of both ulcerations depends upon the depth of the ulcer. If only the mucous membrane be ulcerated, though the case is very different from what it would be if the cellular and muscular coats were ulcerated also; for then there would be peritonitis. There is no proportion between the breadth and depth of the ulceration.

The intestine between the ulceration is sometimes healthy, and sometimes unhealthy. Not only the mucous, but the cellular coat underneath, varies much as to its condition.

Now, these ulcers will heal like those in any other part of the body. Now and then you will see an ulcer in the intestines in various stages. Some are open, some half cicatrized, others wholly cicatrized. You will find healed portions which have evidently been ulcerated, and it is very interesting to meet with an ulcer half healed, for then there can be no doubt of the nature of the affection.

Persons are sometimes found after death to have ulceration in the intestines or stomach, who were not known to be particularly ill during life. They have had some little illness, which perhaps no one knew of; they were in apparent health, when they were suddenly seized with violent pain in the abdomen, and have died from perforation having taken place, and peritonitis having being set up. Occasionally, this takes place when the patient has some other disease which has not been known to exist in the abdomen; but it more frequently occurs where persons have suffered a gastro-enteric affection. These softenings will produce a perforation, just as ulceration will do; and sometimes, though very rarely, a slough will give rise to the same circumstances.

In brutes, perforation has taken place by distention, occasioned by gases. It has taken place from vomiting, in horses, because vomiting will not occur in them, except there be such a violent effort, as is dangerous to animal life. It has occurred in the human subject when the stomach has been diseased; if the stomach be thin, mere vomiting has caused perforation.

Perforations from these causes are generally seen in the stomach, and the lower end of the organ. Doubtless, some perforations occur after death; but when they do not, there is generally violent peritonitis.

Blows on the abdomen will sometimes rupture the stomach and intestines. You would suppose, that where violent peritonitis occurred from this circumstance, the contents of the stomach would be effused; but that does not happen. It is said that sometimes (but it must be very rare) very little irritation has been produced, and only chronic peritonitis. Sometimes the opening has been completely blocked up by nature, through a piece of omentum, or some-

thing else, and no mischief has occurred. Sometimes adhesions have taken place, and a fistulous opening has been the consequence; so that some have discharged the gastric juice from their stomach, while others have had an artificial anus. You know that in the case of the rectum, these perforations will occur, and we have fistula in ano. Sometimes one portion of an intestine will perforate into another. Two portions lie together; nature produces an adhesion; the one becomes perforated, and an opening occurs into the fellow convolution. Occasionally, the intestinal canal has been seen perforated from without. Where an abscess occurs in the liver, or a stone from the ducts or gall bladder has got into the intestines, these parts will become perforated from without. Various tumors have been known to ulcerate into the intestines.

Gastritis, or inflammation of the stomach, is characterised by an acute and constant pain in the pit of the stomach. This pain is increased by the slightest pressure, or by swallowing anything, particularly if it be hot or acrid. When the disease is violent, there is also usually a great sense of tightness across these parts; these symptoms arise merely from the locality of the inflammation; but there are others dependent on the function of the inflamed part—as nausea, retching, and even vomiting; especially when anything is swallowed. Sometimes you have also hiccups—singultus, and also a burning sensation, which generally extends from the œsophagus, and is felt even in the pharynx. It is not uncommon for the epigastrium to be hotter than the rest of the body. There is generally thirst, great anxiety, and not unfrequently a feeling of great debility. The pulse is small, and perhaps hard; but of course this greatly varies.

Acute, violent gastritis, if not quickly remedied, is soon fatal.

You must carefully remember, that often this disease is preceded by merely a spasmodic pain of the part. Persons are sometimes seized with a sudden pain at the pit of the stomach, running through the back, affecting respiration, drawing the patient together, relieved perhaps by pressure; at any rate, not increased by it, unattended by heat, or any great thirst, but perhaps with a sense of cold, and the pain is generally diminished by heat or stimuli.

Now, after the spasm has existed for some time, it may frequently (if it be not remedied, or if it does not cease spontaneously), degenerate into inflammation of the part. You will find the treatment you were adopting at first, highly improper; stimuli do harm, and if you omit the common treatment of inflammation, you will very likely lose the patient.

Gastritis is produced, firstly, by the common causes of inflammation—cold applied to the body, especially when heated, or to the inner surface of the stomach, when the body is overheated. Sometimes, when a person is very hot, and takes cold drinks, before inflammation comes on, there is a state of extreme debility; occasionally the power of the stomach seems almost destroyed, the person is very faint, the pulse is very small, and sometimes death ensues without any reaction occurring. You will hear of ladies dying suddenly when they have

been drinking cold water, or taking ices, while they were hot. The danger does not arise simply from being hot, for the hotter you are, the more good cold does ; but from the person being exhausted. It is not even the simple circumstance of overheating that makes it dangerous for a person to go into the cold bath, or roll himself in the snow ; but it is the circumstance of the person being exhausted, that makes the extraction of all stimuli dangerous. The best mode of treating an affection of the stomach from exhaustion is, to give a large dose of opium, together with stimulants. If the person recover from this state, inflammation may not arise. But sometimes, without such a depression as this, the application of cold to the surface when the body is exhausted, may produce inflammation. The external application of cold, may produce inflammation of the bowels. Occasionally, very dangerous gastritis is produced by the sudden cessation of gout in an extremity. But gastrodynia is frequently induced under these circumstances—a state to be treated perhaps by brandy. Gastritis sometimes occurs sympathetically with a severe affection of the kidney. When a stone is passing from the kidney, the stomach generally sympathises so, that vomiting occurs, and sometimes real gastritis takes place. It sometimes arises from sympathy with the womb—which when diseased, frequently gives rise to nausea and vomiting ; the irritation may amount to inflammation. A sudden emotion of the mind, of a very disagreeable character, great grief, sudden and unpleasant surprise, a sudden and severe shock, and great fatigue, will sometimes give rise to spasm of the stomach, and sometimes to gastritis. Gastritis is also easily produced by very acrid matter, or any stimulus, properly so called—as cantharides, or corrosive sublimate, in large doses. Many poisons, and anything irritating to the stomach, do the same. It occurs also in other diseases. In fevers, gastritis is very common. In the fevers of hot countries, there is a burning heat at the pit of the stomach, deserving the name of active, acute gastritis.

In post mortem examination, you seldom see the whole of the inner surface of the stomach inflamed. Sometimes this occurs ; but generally, it happens only at a particular part. When peritonitis exists, that portion covering the stomach may be inflamed the same as any other part ; but in general, gastritis, properly so called, independent of inflammation of the peritoneum, merely produces local effects of the mucous membrane of the stomach, though occasionally, it extends to the cellular membrane between the two coats. Gangrene is very seldom induced by the disease—I never saw such a thing ; but occasionally it does take place. It very seldom produces abscess ; but occasionally an abscess has been found between the coats of the stomach. You are more likely to find gangrene of the stomach, after acrid substances have been applied, than under any other circumstances. You may expect it after caustics have been taken ; a slough is produced, which may or may not be thrown off.

You must remember, that this disease may arise from various substances introduced into the stomach, without your being able to discover any trace of them. The patient may very possibly have vomited

everything he took, as the ingredient may have passed into the intestines, so as to escape from the body, and yet inflammation, sufficient to destroy life, may have been induced. Although death may ensue from things taken into the stomach, yet you are never justified in saying that gastritis has been owing to poison, unless you prove its presence either in what has been vomited—in the alimentary canal—in what has been discharged—or in a vessel, of the contents of which the patient partook. If you had not an accurate knowledge of this circumstance, you might suspect the poison had been taken without there being any justifiable reason for it; for the appearances caused by poison, or other injurious matter, are the same as those of gastritis, and its effects are the same.

The first point in the treatment is, to discover the cause; because if it be poison, or any injurious substance, the first thing must be to neutralize it. The readiest way of emptying the stomach is, by means of the stomach pump; this is much better than giving an emetic, because they may add to the irritation, or they may fail. The most powerful medicines are those of an acrid kind; sulphate of copper is one of the best, and next to that, sulphate of zinc. These operate immediately, and produce little nausea. Ipecacuanha produces great nausea, and may not effect the purpose after all; at least, it is less certain than sulphate of copper. When you use the stomach pump, it would be as well to employ an antidote. If a poisonous acid have been taken, it is better to pump in magnesia water, rather than plain water; but if an alkali have been swallowed, then you should have recourse to diluted vinegar. The best plan, in all cases is, to fill the stomach with warm water, to pump it in, and pump it out, till the fluid comes out quite clear, and you are satisfied nothing remains.

If you have not a stomach pump at hand, you should employ an emetic; but although you have done all this, and emptied the stomach immediately, you will find it of the utmost importance to go on treating the gastritis as though you had done nothing of the kind. After arsenic or corrosive sublimate has been taken, and the stomach has been washed out, and there is no fear from the immediate effects of the poison, gastritis may nevertheless exist, and destroy (or at any rate produce great danger to) the patient, and you must have recourse to the common remedies for gastritis.

When the disease arises from simple cold, or after poisons, it may be necessary to bleed generally or locally. Cupping can hardly be borne; but leeches should be repeatedly applied over the part, and you should have recourse to blisters when these can be employed no longer. You find it grateful to the patient to allow cold drinks, and there can be no objection to ices. There is intense heat, and a great sensation of thirst; and the greatest comfort imaginable seems to arise from cold draughts. The best plan is, to consult the patient's liking about them. You should change these sometimes for warm drinks, and let the patient regulate the temperature; of course it is necessary to keep the intestines free, and I should think this is best done by clysters. The stomach should be left as quiet as possible,

and therefore I would trust this part of the treatment wholly to injections. With regard to the exhibition of mercury, I hardly know whether it is necessary or not, or injurious or not. I have occasionally administered it where I was afraid death would take place, without seeing the stomach irritated by it; but generally, if you remove the cause, and have recourse to bleeding—if you give the patient cold drinks, and keep the bowels freely open—gastritis generally is disposed to subside.

Gastritis is very common in many acute diseases—in erysipelas, and will go away sometimes, if the patient is kept low, without any treatment; but sometimes it requires local treatment. In fevers you must look out for gastritis; in the continued fever of this country, and many other acute affections, this disease is very likely to spring up, and therefore, in these affections, you should always examine the state of the abdomen from time to time.

CHRONIC GASTRITIS.

GASTRITIS is much oftener chronic than acute. The symptoms are like those of the acute form, only less intense. There is a great sense of heat within the stomach, rising from the œsophagus into the pharynx; great thirst, tenderness of the part on pressure, loss of appetite, nausea, and frequent vomiting. The tongue is generally red somewhere—either at the tip, sides, or all over; but this does not always happen. You must not depend on the tongue alone. In these chronic cases, there are generally dyspeptic symptoms—such as great flatulence and acidity, and a sense of sinking at the pit of the stomach. The latter is a very common symptom, and to remove it, people generally take wine and brandy, and make things worse. The want of attending to this point properly, occasions very absurd treatment. I have seen persons have æther and ammonia, and things of that description, all of which may be grateful for a time, but afterwards produce great uneasiness. When you treat dyspepsia, it should always be ascertained if there be gastritis; for that organ may be in a condition requiring stimuli of all kinds; or on the other hand requiring leeches, and making stimuli and effervescing draughts exceedingly improper. Many persons labouring under this affection, have dyspepsia; for there is great pain on pressure, and because they feel sinking, they take wine, brandy, and meat; and I have seen them get completely well by alteration of their diet, without medicine in some cases, and in others, by applying leeches. The patient is not to be lowered, or leeches applied, from a very slight degree of pain at the epigastrium. You always find that when a person is subject to gastrodynia, there is tenderness, from the part being stretched. If you have spasms in the calf of the leg, you find next day that the part is sore, merely from the muscular fibre having been stretched; and if you do nothing to make it worse, it will go away. If there has been for a certain time an attack of spasm, which has left a little tenderness of the stomach, then you will find it best yield to stimuli. But if there is much tenderness on pressure, and heat in the throat, stimulating

remedies would be improper. You must also remember that a sensation of heat in the part, generally arises from the quantity of acid in the stomach; and if you give alkaline substances, you entirely remove it; but if you think it right, you can apply leeches also. If, however, you give magnesia and carbonate of soda, you will find that a much smaller number of leeches will destroy the acid. Frequently this is the result of an inflammatory state, and the best way to cure it is, to employ leeches; but to prevent the acidity from doing much harm, you should give antacid remedies, or if there be morbid irritability, such a medicine as prussic acid, will be of great service.

Chronic gastritis attends many other diseases. It is very common, in diseases of the heart, for persons to have more or less gastritis; which if it rise to any amount, aggravates all the symptoms. You find tenderness on pressure, and this, perhaps, over all the parts, and you find that some time before the patient has had disease of the heart—this is also by no means uncommon in phthisis. In various chronic diseases, this will come on from time to time, and requires to be remedied, for the symptoms of the original disease will be increased. It is well to ascertain the state of the abdomen from time to time, when patients are labouring under chronic affections.

In the treatment you should avoid stimuli; apply leeches from time to time, keep the bowels open, and remedy acidity.

ULCERATION.

When this inflammation has existed any time, it may perhaps ulcerate the stomach. I know no symptom indicative of ulceration of the stomach. I have known that a patient has had chronic gastritis; but there was no symptom that would lead you to suppose that there was also ulceration. The symptoms are the same in both cases, with, perhaps, emaciation. Sometimes there will be pain alone in a particular part of the stomach; but they may exist without any ulceration. There is no certain diagnosis.

RUPTURE.

If, however, the ulceration proceed to an aperture, then there is a fresh set of symptoms. There is sudden dreadful pain in the epigastrium; and in a case which I saw, there was also intense coldness, so that the patient held a glass of boiling water to the part, without being at all annoyed by it, and he also drank water so hot, that I could not have put it into my mouth. You will find, when I come to speak of dyspepsia, that affections of the stomach are frequently attended by a want of power to generate heat.

After this pain has existed for a certain time, it is generally followed by peritonitis. Mr. TRAVERS, in the eighth volume of the MEDICO-CHIRURGICAL TRANSACTIONS, states, that he considers the diagnosis in a case of this kind, or perforation of the intestines, would be sudden pain in one part of the abdomen; in the case of the stomach, at the epigastrium, radiating the part, and he considers the pain would never cease.

A patient of mine—whom I had never seen before, but she was said to have been long dyspeptic, and she was tall and very spare—had an aperture of the stomach. One day, after dinner, she was seized with a sudden pain in the stomach, and it was impossible for me to say whether it was more than a spasmodic pain; for it was not aggravated by pressure. I gave her laudanum, of which she took sixty drops, and finding no relief, she took more, and so she went on, till in a few hours, she had taken 300 drops, and after that the pain ceased; and therefore it is not correct to say that the pain never ceases. I afterwards found other cases in which the pain went away, and therefore you are not to be sure that the stomach and intestines are not ruptured, because the pain ceases. After twelve or eighteen hours, the pain returned to my patient; for the whole of the peritoneum became inflamed together, which could not be removed, and she died.

From the particular circumstance of the suddenness of the pain, the great prostration of strength, the smallness of the pulse, and the sinking of the patient, you may imagine that the stomach or intestines have been ruptured, and you are not to imagine it the less, because, after a time the pain goes off. If the patient live long enough, peritonitis occurs, and various symptoms take place, rendering the case clear enough. You see that from rupture of the alimentary canal, peritonitis has occurred, but it cannot be remedied, because there is a local disease keeping it up.

These perforations sometimes occur without any sudden symptoms. Occasionally, slow peritonitis occurs, which gradually leads to ulceration.

In these cases of rupture, I should recommend the free exhibition of opium; and when inflammation comes on, the application of leeches, which will lessen the suffering, though you can do no further good.

If the destroyed portion of the stomach owe its condition to an ulceration, produced by the gastric juice, you will not find the edges so smooth as in cases of simple ulceration, because the gastric juice does not act so very locally; but the parts all around suffer and become soft.

Occasionally, though the stomach be ulcerated, yet no serious mischief arises, because nature produces adhesions around the stomach, and glues it to the liver, the peritoneum of the omentum; so that although the stomach is perforated, no aperture exists. Of course there is an injury from the ulceration, but there is none from the perforation.

Pus is found within the coats of the stomach, and sometimes it has been diffused throughout the whole of the stomach. Between the coats there has been one sheet of pus, bounded by the peritoneum on one side, and probably by the mucous membrane on the other, the muscular coat having been destroyed. But sometimes it has been found between the muscular coat and the mucous membrane, and the muscular coat and the peritoneum. Sometimes one small abscess is found, and a collection of pus takes place in one particular spot.

Pus, it is said, has been found on the inner surface of the stomach; but when you remember that this part is naturally covered by mucus, and sometimes this is secreted in a great quantity, one hardly knows whether there is an alteration in the secretion. Still there is no reason why it should not secrete pus on its inner surface, and no doubt it does.

You very rarely find fibrin effused upon the inner surface of the stomach, yet there is not a mucous membrane which may not form fibrin under violent inflammation. Authors state that occasionally a false membrane has been noticed on the inner surface of the stomach; but I believe this generally occurs in children. It is more before puberty than after, that fibrin is formed in the œsophagus. A false membrane in the œsophagus, generally terminates in the cardia; so rarely is fibrin formed within the stomach, that even if the œsophagus has produced it, the false membrane has generally ended at the cardia. The layer of fibrin seldom extends lower than the upper organs.

DISEASES OF THE STOMACH.

THE stomach is liable to peculiar structural diseases besides common inflammation; as scirrhus, open cancer, encephaloid disease, and melanosis, which will occur in any part of it, but more particularly at the cardia and pylorus. This agrees with the general rule, that the orifices of cavities are most liable to structural disease.

When there is scirrhus, there may be pain at the spot which is affected, and that pain may go through to the back, and be increased on taking food. There may be also all the symptoms of indigestion, and great nausea and vomiting, so that nothing can be retained on the stomach. If the cardia be the seat of the affection, the food is generally rejected immediately. I saw an instance where the moment the food reached the cardia, a heaving occurred, the patient felt as if he were being destroyed by wind, and he said that the complaint was nothing but wind. But if the disease exist in the pylorus, then generally the food will be retained some time, perhaps half an hour or more. There is no general rule.

There may be pain in the region of the cardia, or in that of the pylorus. In the case of the cardia, you may find great difficulty in passing a probang into the stomach, or there may be a stricture at the part; but when the pylorus is affected, there is, at last, a tumor, besides severe pain. Emaciation, and sallowness of look, generally occur in that case, such as might be called cancerous cachexia. Sometimes the vomiting which takes place is very offensive, sometimes bloody, and sometimes the eructations are exceedingly fetid.

Very commonly, however, there may be dreadful disease in these parts, with scarcely any symptoms at all—without any vomiting, till just before death, and perhaps no other symptom than extreme weakness, paleness, and some obscure uneasiness about the stomach, and perhaps not that even.

When the pylorus is affected, you occasionally have jaundice, from pressure on the lymphatic duct or choledochus. Blood will some-

times pass through the pylorus into the intestines, so that it will appear in the motions.

Any local symptom in this complaint may be absent—as vomiting or pain, and it is only by very careful observation—indeed, by considering that there are no signs of derangement of other organs—that we frequently make up our minds that the disease is probably situated in the stomach. Sometimes there is very little more than dyspepsia, and sometimes people eat well, and are but little disturbed by indigestion; but at last there is generally more or less hectic.

These scirrhus formations, and cancerous ulcerations, as well as other organic diseases, may exist at any part of the stomach, and the symptoms are generally the same.

You are much less likely to observe symptoms in the stomach, if there be no obstruction produced. If there be an obstruction in the pylorus, then you have disturbance; if in the cardia, there is great difficulty of swallowing, and great pain, when the ingesta reach the part. In the case of the pylorus, the stomach becomes so distended, from the difficulty with which the contents pass out, that vomiting generally occurs. It is generally noticed that, in the case of obstruction of the pylorus from any disease, the stomach acquires a very large size, from the difficulty with which the contents pass through.

If scirrhus is general in the stomach, the organ of course becomes very thick throughout, and the cavity is lessened. The mucous membrane looks puckered and ulcerated. When the disease is situated about the pylorus, it may occasion the stomach to become of an immense size; whereas, if it exist throughout the stomach, from scirrhus causing a shrinking, it may produce very great contraction.

Dr. BAILLIE mentions that, occasionally, simple stricture of the cardia and pylorus will occur without any organic disease at all, as in the case of the urethra.

Mere palliation is the treatment in this affection. You must support the patient's strength, and give narcotics to alleviate the suffering and vomiting. Hydrocyanic acid produces the greatest alleviation in these cases. It always lessens, and frequently arrests, the vomiting for a length of time. You must employ opium to reduce very great pain, if it exist. I have also used iodine with advantage in these cases. In one case, the disease appeared to stop, from iodine and prussic acid together. I have no doubt the patient laboured under scirrhus pylorus, for I felt the tumor, and the patient had a sallow look, and vomited for some time. However, very often indeed I have seen no such result as this, and sometimes there has been no benefit whatever.

In stricture of the cardia, some good may be done by passing a bougie, taking care that it be not so large as to occasion suffering to the patient. Although organic disease cannot be remedied, yet the effect of it in lessening the canal, may be diminished; but great care should be taken to employ it, so as to cause no injury.

These cases are to be treated by improving the general health, by the cold bath, and a pleasant occupation of the mind.

Calculi have sometimes been found in the stomach, but generally

they have been biliary calculi, which have got there either by ulceration, or by passing upwards through the pylorus. One which was examined, was found to be cholesterine. Some authors mention, that calculi, of the size of a hen's egg have been found in the stomach. I never myself saw a stone in the stomach.

The stomach is very liable to hæmorrhage. Without any organic disease, or inflammation that can be discovered, and frequently without any danger whatever, a quantity of blood is discharged into the stomach, and it is usually dark, and in large clots. When speaking of hæmoptysis, I stated that one could not infer, because the blood was black, that it was venous; for if arterial blood be poured forth into a cavity, and lie there, it will acquire a venous character. Its nature is not to be ascertained by the colour; but when you consider that patients will pass a great quantity of blood that way, it is easy to conceive that it proceeds from the veins, where the motion is very slow. If it came from the arteries, one cannot but conceive that patients would suffer much more depression. We know that a great quantity of blood, which is sometimes discharged from the pelvis, flows from the lower part of the alimentary canal, attended with not very great loss of strength, and the blood is for the most part black.

Hæmatemesis, however, is usually marked by nausea and vomiting; if not by the latter, yet by the former, and by the sensation of a load at the epigastrium and hypochondrium; and sometimes there is great pain on pressure. The blood is also frequently discharged by stool.

This disease occurs very frequently in persons who are dyspeptic, though dyspeptic persons do not by any means always have it. It occurs far more frequently in females than males, and is common in women whose catamenia are suppressed or diminished. It will, in some persons, return at intervals, and in some it is periodical.

The ordinary form of the disease is without danger generally, but may be very dangerous. It may proceed from an ulcer, and you may not be able to stop it; but for the most part it would appear, that great congestion has gradually occurred in the neighbouring parts—in the stomach, and, most probably, in the liver and spleen, and all around; and then this blood, half out of the circulation, is poured forth, and nature is very much reduced by it; it is mostly, a passive hæmorrhage. It sometimes arises from an obstruction in the liver and spleen, as well as from the want of secretion by, or discharge from, the womb. It is frequently observed in hepatic or splenic diseases. The danger chiefly proceeds from the source whence the hæmorrhage proceeds. The aneurism of the aorta has sometimes opened into the stomach, and given rise to the disease. Occasionally this is only a part of purpura hæmorrhagica, of which I have formerly spoken.

I once saw a patient die from this affection, in a minute or two. I was not aware that he had hæmorrhage before, but he had some pulmonary complaint; he suddenly fell back, and died in a minute or two. Blood came from his mouth, and on opening him, the stomach was filled with blood, which formed a large mould of the organ. I

could discover no disease whatever of the part, nor any vessel that let it forth.

Sometimes, in this affection, the inner surface of the stomach is pale, and sometimes it is in a state of great congestion.

In hæmatemesis, it may be requisite to take blood from the arm, or to apply leeches all over the stomach, and then to order blisters. But for the purpose of stopping the hæmorrhage, it is best to give the patient cold drinks, and if you can, ice-water. He should have hardly any food, and his drinks should be aqueous, and as cold as he can bear. One of the best remedies—indeed I do not know that I ever failed with it—is oil of turpentine. It should be given in small doses—twenty or twenty-five drops every six or four hours. If it should create sickness, it will be advantageous to unite it with hydrocyanic acid. They may be given conjointly, or you may give the acid a few minutes first. The acid does not stop the hæmorrhage; but if there be any nausea, it enables the stomach to bear the turpentine much better. Lead is certainly the best in passive hæmorrhage; but here you can apply the oil of turpentine to the spot which is the seat of the hæmorrhage; and although I never saw it do good in the hæmorrhage from the lungs, yet it is superior to lead, in the case of the stomach and intestines. Its effect when it comes into immediate contact with the part, is very great; but still it is necessary to keep the patient perfectly quiet. I have had a large number of cases of this disease within twelve months, and I believe every one of them has done well.

The preceding are the diseases generally of the stomach, except dyspepsia, which is so connected with an affection of the liver and alimentary canal, that I shall speak of them altogether under the name of derangement of the digestive organs.

ACUTE ENTERITIS.

We will now consider inflammation of the intestines.

In simple, active, and violent enteritis, there will be acute, deep-seated pain, in various parts of the intestinal region, and of course it is increased on pressure. The pain is constant and aggravated at intervals. It differs from “gripes”—pinching, and purging—because in this there are intervals of ease, and the person is comfortable when it is over; but the pain in enteritis is always present, though not in a uniform degree. This is important to observe, because I have seen persons seized with tormina, which required brandy, or at least laudanum, and then gradually the tormina became constant, and there was increased pain on pressure; whereas before it was rather relieved by it. When this change occurs, laudanum and brandy would only increase the pain, so that bleeding would be required.

When there is sharp fixed pain in this disease, there is generally costiveness. The abdomen, in time, becomes tense, and the countenance becomes anxious from the severity of the pain. The breath quickens, and the tongue whitens. Nausea and vomiting soon occur,

and if complete obstruction take place, you may have vomiting of the fæces, which was formerly called *passio iliaca*. The patient lies on his back, just as in peritonitis, with his body drawn forwards, and his limbs drawn up. The patient lies quiet, for if he moves about he increases the pain. A patient is often disposed to be restless throughout, but for some reason he cannot. In these cases, the patient keeps his body still, but tosses his arms about. The pulse becomes quick, small, and hard—wiry, generally. A thready pulse is one as small and soft as thread. The tongue at last grows brown, and at last (if the patient gets worse) the pain all ceases, the patient will often bear pressure, the abdomen swells and becomes very large, and if you place your fingers across it, and strike it, the sound is as hollow as a drum. The patient then becomes very restless and delirious, the pulse becomes irregular and very rapid, the respiration is also quickened, and death ensues.

After death, you will very likely find mere redness, and no effusion whatever. Sometimes, however, lymph, and more or less semen, is effused upon the surface, from the peritoneal coat having suffered with the rest. From the great congestion, sometimes a portion of the intestine will be as black as any blood can be. This has continually been mistaken for gangrene; but you find it resists the fingers in a way that gangrene would not. Mere congestion will make a person black in the face, but there may be gangrene, though it is very rare; I do not recollect seeing a case of it. The part becomes lacerable like paper, and smells intolerably. Occasionally, pus has been found in the substance. You have the mucous membrane within, and the serous without, inflamed; but the chief seat of this inflammation, producing this obstruction and violent pain, is, I believe, the cellular coat of the intestines. I have never seen the muscular fibre inflamed, but it may be hypertrophied. Acute rheumatism is, for the most part, inflammation of the aponeuroses, even when it appears to be the muscle itself which is affected; and if the muscle be affected by it, it is only secondarily. We never have effusion or suppuration, or anything of the sort, in a muscle. I think that the cellular membrane of the intestines is chiefly diseased, although the peritoneal coat and mucous membrane may also be inflamed. It is said that pus has been found in these cases in the centre of the intestines; I have never seen this.

Enteritis is distinguished from peritonitis by the obstruction that is produced, the constipation, and the consequent effects of it, nausea and vomiting; and also by the circumstance of the pain being fixed, particularly about the umbilicus, which is generally the seat of it; whereas, in peritonitis it is diffused.

This disease is caused by anything which will produce inflammation—cold and wet applied externally, and cold internally; and it is induced by anything which causes obstruction, if it be continued long enough for the disease to be set up. If there be hernia, and the part becomes gist, then you have enteritis. If the fæces becomes black and indurated, and will not pass, then you may have this disease.

The first thing in the treatment, is to find out the cause. You

must examine every part of the abdomen, to see if there be not umbilical or ventral hernia; for patients continually have symptoms of this description from hernia, and are not aware of it, from the hernia being so small as to escape attention. Great mistakes may arise from not remembering this.

If there be hernia, that will be treated as the surgeon thinks best; but if not, the first thing is to bleed the patient well. You should set him as upright as he can be, and bleed from a large orifice without mercy. You must, of course, consider the patient's strength; but you should bleed on till you knock down the pulse, and make him faint. After this, a very large dose of calomel should be exhibited. A large dose will clear the stomach as well as well as a small one, and it will be more effectual in purging. After it has been taken sometime, other purgatives should be given; but immediately after it is administered an active injection should be given, so that, if possible, they may meet half-way and combine, and then out goes the disease. You should first bleed very freely, because purgatives will not operate till you have done that. You should then give a large dose of calomel—a scruple, by the mouth, a strong purgative injection, plenty of salts, salts and senna, colocynt, oil of turpentine; and I would repeat the calomel in smaller doses—ten grains, every four or six hours, giving purgatives in addition, from time to time, till the mouth is sore; and generally, when this takes place, and the bowels are freely open, the inflammatory symptoms go away; and as the obstruction frequently arises from mere inflammation, if you remove the latter by bleeding, and producing a mercurial affection on the patient, the former will subside.

It is well also to cover the abdomen with leeches; from twenty to forty should be put upon it; and if nothing will open the bowels—if you have given mercury till the mouth is sore, and followed it up by other purgatives, such as croton oil, which is one of the best, and of which a drop may be given every two or three hours, (sometimes I have given a drop every hour); then you will find the smoke of tobacco very useful. A tobacco clyster is sometimes dangerous, and you should only put a drachm to a pint of water, and throw up one-half of it, and watch its effects; but the smoke of tobacco is very manageable, for you can regulate it in proportion to the pulse. SYDENHAM was very fond of it, and calls it by very far the most efficacious of all injections. If it fail, take the patient out of bed, and dash a few pails of cold water smartly on the abdomen; that will sometimes open the bowels when nothing else will. In a case of simple inflammation, you must bleed and purge in the most decided manner—giving purgatives as abundantly as the stomach will bear them, but you may have all these symptoms produced by spasm. The disease is then called

COLIC.

Enteritis is inflammation, colic is spasm; but when the spasm ceases the inflammation may come on, and you have a case of decided enteritis.

SYMPTOMS.

Constipation, violent pain, chiefly about the umbilicus, relieved by pressure, wanting the inflammatory tenderness. The relief is always evident, and sometimes very great upon pressure; indeed, I have sometimes pressed with the whole weight of my body, and the patient has felt relieved. The pain is intermittent, sometimes being much better, and then coming on again most terribly. In most cases there is vomiting—at any rate, nausea; and thus vomiting may be fecal. This, however, is rare, both in enteritis and colic. The spasm is not confined to the intestines, the abdominal muscles being frequently contracted into knots. The recti muscles are particularly contracted, and you will sometimes see retraction of the navel. Sometimes there is tenesmus, and sometimes great contraction of the sphincter-ani. There is violent pain in the loins, great flatulence, and no feverishness. After this state of things has continued sometime, you will often have the most genuine enteritis set in.

Now the causes of this disease are, cold applied when the body is overheated, ingesta of various kinds, which disagree with the stomach, obstruction of any kind—such as hernia, or hardened feces—and some particular substances, such as lead. Cold and ingesta disagreeing with the stomach are very frequent causes. Sometimes you will have enteritis first, and then colic, and *vice versa*; though the cause of both one and the other may be the same. In some persons, lead in very small quantities will induce colic. A medical man once told me, that he had it from a child's cot, newly painted, being placed in his bedroom. Individuals exposed to lead in any way are very subject to this disease.

MORBID APPEARANCES.

Whatever be the cause of the disease, you will sometimes find nothing on dissection, at other times you may; but this is mere chance. Sometimes you find great contraction, sometimes more or less of inflammation. Sometimes you find the cause to have been something sticking in the way, or mechanical pressure of some kind, or you may find intus-susception, one part of the intestine running into another. With respect to the muscles, I have seen them thin, white, and pale; in fact, little more than tendons. In intus-susception, you usually find the upper part of the bowel has passed into the lower. Dr. BAILLIE has given some good representations of intus-susception.

TREATMENT.

The treatment consists in giving strong purgatives, bleeding, if the patient be stout, warm fomentations, and other means which I shall notice. Within certain limits, bleeding is an excellent antispasmodic. Spasms of various parts of the body will cease after blood has been taken. You will not always bleed, but only when the pulse

will bear it. It may also be had recourse to, to prevent inflammation. It is very useful to give a large dose of calomel—a scruple—repeated at longer or shorter intervals. If it remain on the stomach, give a strong dose of castor or croton oil, and Epsom salts. Croton oil is undoubtedly one of the best purgatives; and you may, if you like, begin with it, giving a drop for a dose, repeating it every hour or two hours, till it answers the purpose. I lately saw a case, in which all the medicines had been tried without effect, but a drop of croton oil every hour, or half hour, in six doses, operated freely, and the patient became perfectly well. An injection of oil of turpentine will also be found exceedingly serviceable. About three ounces diffused in a pint of fluid is of great service. The warm bath affords great relief, but it must not supersede purgatives. At the same time you must not omit clysters, and one of the best is, the oil of turpentine. Some practitioners always combine opium with their calomel to relieve the spasm. In this way, by relaxing the spasm, and by causing the bowels to open, opium may act as a purgative. It also reduces pain, and makes purgatives and calomel stay better on the stomach. But I have found the bowels open just as well without opium, and there is no trouble afterwards. If you exhibit opium, after a time the bowels become torpid, and I am quite sure you will succeed as well without it as with it.

Sometimes dashing two or three pails of cold water over the abdomen will succeed when everything else has failed. I knew it done when the mouth has been made sore by calomel, and the patient caught no cold. Sometimes it will open the bowels immediately, just as it will relieve spasmodic stricture. Smoke of tobacco is also very useful, used as I have before directed. Some have even found the inflation of common air serviceable, by producing a great distention of the intestines. It is well also on another account to administer a clyster; for sometimes the symptoms arise from hardened feces lodged in the rectum. I have known instances of this description. Occasionally, especially in women, nothing will relieve the patient but taking the handle of a spoon, and picking out the hardened feces.

Supposing, however, that the disease has been induced by lead, you will find that it has a great tendency to return. There is this tendency under all circumstances, but particularly in the case of lead; so that, after you have opened the bowels, it is necessary for some time to ascertain that the bowels are still regularly opened. Some German authors, and Dr. PERCEVAL, of Manchester, have praised alum very much. They state, that from two grains to a scruple has been given every six hours, with great relief; however, I should never think of depending upon such a remedy in cases of colic. It may be very well, after the attack is over, for the purpose of keeping the bowels open, but I should not think of placing any reliance on it during the fit. I know that it has been useful, for I recollect having been consulted by a gentleman, who every six weeks or two months had a violent fit of colic, so that it was necessary to put him in the hot bath, and exhibit a violent dose of purgatives. This always cured

him, but left him in a state of great debility ; and nothing that was done prevented the recurrence of the attacks. I gave him a scruple or half a drachm of alum three times a day, mixed with ipecacuanha powder, well diluted, and it entirely cured him. He took it for a month or six weeks. I saw him for three or four years afterwards at intervals, and he had never had another attack. I dare say that ordinary purgatives in most people will do very well, but I tried alum in this instance, with great success. You will find it useful, where there is a tendency to disease of the intestines, to put the patient on his guard against cold, and order him to wear flannel about the abdomen. A large roller wound three or four times round the body protects the abdomen, and is always useful. In this, as in most other bowel complaints, it is particularly necessary that the patient should avoid cold feet ; for some individuals, if they allow their feet to become cold, always have an attack of colic. When the disease has arisen from lead, sometimes the stomach will remain in a state of spasm, so that there will be an aching pain there, and occasional vomiting, notwithstanding the bowels are regularly opened. This is best relieved by prussic acid, or stramonium.

When lead has induced colic, sometimes, after the colic is over, the wrist will drop ; the muscles of the fore arm and hand paralyzed, so that the patient perhaps cannot use the hand, and the muscles will at last waste away. Some writers say that the abductor pollicis wastes more than the others ; but I am not aware that it does. Sometimes this will occur from lead without colic.

Now this may be easily remedied. In the first place, you should withdraw the person from the poison, and prevent him for a time from following his occupation. It is also very important that he should not wear his business clothes ; a quantity of lead remains upon them, and that may of course keep up the disease. Many painters might avoid this disease if they were cleanly—if they wore sleeveless over their coat, and as soon as they had finished working, regularly put off their working clothes. You cannot persuade men, however, to do this ; they will not give themselves the trouble till they have once suffered for their negligence ; and even then, as soon as they recover, they become careless.

In the way of local application, electricity is one of the best remedies. It should be applied to the hand and fore-arm, because the muscles of both are paralyzed. I think I have seen sparks answer better than shocks, and the electricity should be applied, if possible, every day. It has also been recommended that the patient's hand should be supported by splints, and that they should be used night and day, so as to keep the hands in a state of constant extension. Dr. PARSONS recommends this. Blisters are also said to be useful. I have found stimulating applications of all kinds serviceable, but particularly electricity. When you apply stimulating applications on the skin, they only act sympathetically ; friction may make the parts worse, but electricity will go to every spot which is usually the seat of the disease. I have never seen the internal medicines, except strychnine, stramonium, or nux vomica, do good.

INTUS-SUSCEPTION,

Of which I spoke before as sometimes giving rise to colic, generally occurs in the small intestines; or else the small intestines slip down into the large—into the colon. However intus-susception of the large intestines has occurred; for the cæcum and a part of the colon have been found in the sigmoid flexure. Sometimes the small intestines from the duodenum, have all slipped into the large intestines, and the cæcum has been seen to protrude from the anus. These cases are rare, but are not from that more impossible.

This disease may occur from any irritation, and sometimes, doubtless, it has been temporary. On opening animals, you will sometimes see intus-susception occur before your eyes, and then the parts will slip out again.

However, when intus-susception has occurred, the parts may remain in the situation into which they have been forced, and at last cohesion takes place between the external surface of the descending portion, and the inner surface of that into which it has slipped; and the mucous membrane may then cohere together, so that complete obstruction occurs, and the person dies. Sometimes the part which has slipped in has only adhered at the upper portion; sloughing has then occurred, and a part of the intestine has been discharged.

Dr. BAILLIE mentions having seen, or known, a yard of the colon discharged from a woman before death. He mentions another person who lived two years after losing six inches of her colon. This may occur without any great mischief taking place; adhesion occurs at the upper portion of that which has slipped down; sloughing afterwards takes place, but the part remains continuous as before, only shorter. Whether the person evacuates more frequently after shortening of the intestines, I do not know. You will find another case in which twenty-three inches of the colon were discharged; and in another, twenty-eight inches of the small intestines; and yet recovery took place. CRUVEILHIER mentions a case, in which eighteen inches, together with the mesentery, were discharged; but the person entirely recovered, after having exhibited signs of strangulated hernia.

Now, there is no proof of the existence of intus-susception during life. I recollect being called to a case of violent colic, which appeared to arise from a man drinking sour cider and rum, and a number of other things. Violent colic suddenly took place, and his bowels from that moment were confined. He took castor, croton, and olive oils, hot baths, cold baths, and everything that could be devised; but no evacuation was produced. He survived a fortnight, and after death intus-susception was found. Portions of the intestines were perfectly coherent together, forming a solid mass; so that there was no continuation between the upper and lower portions of the intestine; but the circumstance was not known before death: there was no particular tumor to be discovered. I do not think, therefore, there can be any sign whatever, though the disease has occasionally been suspected; and indeed I suspected it in the case

to which I have just referred. Some say that we ought to cut down upon the part—that we are not bound to wait for the person dying. Now the case ought to be very clear indeed before a man's abdomen should be opened, and an attempt made to untwist his intestines directly. It has been proposed to cut down upon the part wherever the seat of the pain is; but this is a very fallacious guide. The pain will be sometimes at one part of the abdomen, and after death you will find the obstruction at another. But if, after symptoms of colic, a tumor be produced, the surgeon might then take into consideration whether he would cut down or not.

ANDRAL mentions a case where thirty inches of the ileum were discharged, and death did not take place for three months, and then it arose from peritonitis. He suspected that death occurred in consequence of the cicatrix being lacerated accidentally, and that otherwise the patient would have done well. The great quantity of intestine discharged in these cases may seem wonderful; but Dr. BAILLIE, I should suppose, never told an untruth in his life. In the ninth volume of the *EDINBURGH JOURNAL*, there is a case where the colon, cæcum, and meso-colon were all discharged; but of course death took place.

ACUTE AND CHRONIC DYSENTERY.

THE symptoms of this complaint are, a mixture of those of colic and enteritis, so that you have violent pains of the belly—tormina. You have also a forcing down backwards of the rectum called tenesmus; and frequently small mucous or bloody stools, together with more or less retention of the fæces, a great discharge of secretion from the inner surface of the intestines, but an obstruction to the course of the fæces. The stools are scanty and irregular; the discharges are very frequent, but each one is scanty; and when the fæces do come away at all, they are found in hard lumps. SYDENHAM defines dysentery to be "frequent mucous stools with griping." Dr. AKENSIDE gives the same definition, but adds to it "frequent desire," in fact—tenesmus.

The blood which is discharged, may be clotted or merely in streaks; and sometimes it is discharged in a very considerable quantity, quite liquid. Very frequently there are shreds of fibrin. Sir JOHN PRINGLE says that he has seen fatty matters discharged: that I can believe, for I could mention the same with respect to diarrhœa.

The disease may be acute or chronic. When acute, there is violent inflammation as well as spasm, so that there is considerable feverishness, quickness of pulse, heat, thirst, pain in the abdomen, not only coming on in fits, as tenesmus, griping, but also a constant pain, and increased on pressure, together with dryness of the skin.

This state may go off in a few days, or it may last for a month; after that time you may perhaps call it chronic dysentery.

The liver very frequently ceases to secrete, so that no bile at all passes away, and sometimes it is in a state of great irritation, so that it secretes green bile, and the motions are therefore green. Some-

times, however, the motions appear pitchy, and occasionally they are like the washings of meat. Sometimes, instead of thick mucus, there is thin serum, and from there being a little hæmorrhage, it is rather red, so that the discharge from the alimentary canal has been very aptly compared to the washings of meat. The discharge may be of all colours and of all qualities; but the fæces usually rebind. If there be an evacuation of fæces, they come away in hard lumps called scybala. Nature gets rid of these from time to time—they are like forced-meat balls, only hard. The tongue is of course foul, and frequently aphthæ appear, from the mucous membrane suffering.

This disease is very common in hot climates, and is frequently united with their fevers and the fevers of our hot seasons, and frequently it is joined with intermittent and remittent fevers, which it sometimes precedes and sometimes follows. It is also commonest in the hot weather of this country. Sir J. PRINGLE, and Sir G. BLANE both say that it arises in camps at the same seasons, and under the same circumstances as bilious fevers. Now and then it has been vicarious. It will cease in the army and navy in different parts of the globe when fevers begin, and re-appear when they cease. When typhus fever prevailed lately in Ireland, dysentery prevailed at the same time, and occasionally alternated with it. It very commonly occurs with liver disease, and occasionally it has been united with measles. The causes of liver disease and of fever, affect all parts of the abdomen.

Chronic dysentery is much less violent than acute, and there is much less pyrexia; indeed this may become hectic. The intestines become diseased, suppuration and ulceration occur, and you have hectic fever. Sometimes in the chronic form, there is no fever, for it degenerates into diarrhœa, so that all the patient complains of at last, is mucous stools and tenesmus. The fæces not being retained, it may degenerate into diarrhœa, so that you have dysenteric diarrhœa—diarrhœa characterized by great griping and a discharge of mucus.

In hot countries, more stools occur during the night than the day, and at new and full moons. Remittent fever prevails most undoubtedly at new and full moon, and the symptoms are more intense then, and the same has been observed with respect to dysentery. More stools occur at that time, from the high tides that then take place giving rise to more vegetable decomposition.

The morbid appearances in acute dysentery are, great inflammation of the intestines, chiefly of the large ones, and especially of the rectum and colon, and indeed from its so particularly affecting this part, some have proposed to call it colitis, but that would not be quite correct, because it also affects the rectum, and likewise the small intestines. Besides marks of redness and congestion, there is occasionally superficial abrasion of the mucous membrane, and sometimes deep-seated ulceration and great distention.

After the chronic form of the disease in the colon and rectum, we find great redness and ulceration; but we also find that effect so peculiar to chronic inflammation—great hypertrophy; such thickness as acute inflammation will not produce. There is great thickness of

all the coats; the rugæ are all greatly enlarged, so that the inner surface is very rough, and you see shreds of lymph hanging upon it, sometimes of great length. Occasionally these changes are only in patches, and occasionally they are very extensive; and at the same time red patches are frequently seen in the small intestines. The colon has been found a quarter of an inch thick after chronic dysentery. Minute abscesses also are seen on the substance of the intestines on opening the glands; they are so very much enlarged, that they look like warts.

It is not uncommon also to find the liver diseased, frequently, chronically inflamed; occasionally indeed in a state of abscess. The spleen is also similarly affected; but the liver is much more regularly affected.

Dysentery is continually produced by changes from heat to cold, and *vice versâ*. Long-continued heat greatly increases the tendency to it, and fatigue also does the same; therefore, in those countries where it is continually seen, it frequently breaks out when the army has greatly suffered, or there has been a sudden vicissitude of temperature, as a cold wet night after an extremely hot day. It is particularly common on board ships and in camps. It is a fact that when malaria is very extensive; dysentery is very common, but as there are wet situations, one hardly knows whether the malaria itself causes it. I mentioned before, that with the remittent fevers of hot countries, there are bilious fevers of all kinds. It is also produced by bad food or bad water, which was the case at the Penitentiary at Milbank. It co-existed there with scurvy and various other diseases.

Dysentery was once very common in London, but now we seldom see it. I have never seen it but in those who have been in hot climates.

SYDENHAM treats of it as a disease under daily observation. It was one of the great causes of mortality in the city, just as was the case with ague, plague, and scurvy. I presume it arose then from the bad quality of the food, and the bad drainage of the city. Those, it is said, in ships suffer most, when the disease prevails, who are nearest the pump.

Fruit has been supposed to produce this disease; but unless it be bad, there is no reason for this. Of course, bad fruit might produce it, but the mere circumstance of eating fruit at the time when nature provides it for us, does not cause this disease; on the contrary, fruit has been very beneficial. ZIMMERMAN mentions in his work on EXPERIENCE, that in 1751, a whole French regiment was nearly destroyed, in the south of France, by dysentery. The officers purchased the entire crop of several acres of vineyard for the regiment, and not one man died from that time, nor was one more attacked.

TISSOT mentions, that eleven persons in one house were attacked by dysentery: nine of them eat fruit and recovered, but the grandmother and one child had wine and spices instead, and both died. The worst flux that was ever known in the army in Holland, occurred at the end of July, when there is no fruit there but strawberries, of which the men never partook; and the disease ceased entirely, when

October arrived, and the grapes came, of which the men eat plentifully.

Any cause of intestinal irritation may produce dysentery, especially when a predisposition has been given by long-continued heat, and by bad food and drink. At the old barracks at Cork, the water was contaminated by common sewers, and made brackish by the tide, and dysentery prevailed. This was remedied, and the disease almost entirely ceased. LINNÆUS's friend, ROLANDER, had dysentery from drinking standing water out of a cistern of juniper wood. He ascribed the disease to animalculæ; but its being standing water was enough to account for the disease.

It was formerly imagined that this disease was contagious, and that it spread most from the stools; so that if any person followed another labouring under dysentery, for the purposes of nature, it was conceived that he was more liable to catch it, than by simply being with him. It is impossible to say whether it is contagious or not, but the sporadic cases of chronic dysentery, certainly are not contagious. I never saw any reason for its being so thought, it may be so abroad. Some think that almost any particular disease, under particular circumstances, may become contagious, and therefore I do not say that it ever is so; but as the disease is seen in England, it is certainly not.

In the Peninsular war, our army lost 4717 men by this disease alone. In 1812, 2340 died; in 1813, 1629; and in 1814, 748.

The disease is very manageable, if taken in the first instance, but extreme mortality arises from the unfavourable circumstances in which the men are placed.

The disease appears to be inflammation of the mucous membrane, together with spasm of the muscular fibres, chiefly affecting the large intestines. The inflammation causes constant pain, sickness, pyrexia, and great discharge of mucus and blood; the spasm causes occasional severe pain, and retention of the fæces.

The prognosis much depends on the violence of the symptoms; but authors always mention, that one of the worst symptoms is, the discharge of worms, as though the worms instinctively knew that their habitation was about to be dissolved, and the sooner they left it the better.

TREATMENT.

The first thing is, to remove, if possible, the cause of the disease, either from the patient, or the patient from it, or else you have to conquer both the disease and the cause.

Acute dysentery is to be treated antiphlogistically. It may be necessary to bleed vigorously in the arm, to apply leeches freely and repeatedly to the abdomen, to give mercury and get the mouth sore, to apply cataplasms of hot moist bran to the abdomen, or apply them cold; but the moisture generally answers best when warm. Though all agree upon the importance of calomel in the disease, yet some recommend large doses at intervals, and others small ones. Those who recommend the latter, would give other purgatives at intervals,

for the purpose of emptying the intestines, such as castor oil; whereas those who give large doses, trust more to the calomel itself.

It is highly necessary in this disease to open the bowels well. Some people would give a scruple of calomel at intervals, so as to get the mouth sore as quickly as possible, and at the same time to empty the alimentary canal. Those who give small doses, would give other purgatives plentifully; but it is necessary to get the bowels open as speedily and effectually as possible. It is useful to employ opium at the same time, on account of the great tendency to severe spasmodic pain. The opium may be united with the calomel, and if you take care to make the calomel operate by other purgatives, no harm can arise from it. If castor oil will stay upon the stomach, I should prefer it to salts, because perhaps there is great discharge of mucus, and perhaps watery stools, rather than fæces, and castor oil thoroughly empties the alimentary canal. Emollient clysters are also of the very highest importance; but nothing acrid should be put into them. Clysters of gruel, with a certain portion of laudanum and castor oil, will be much better than clysters containing salts. Of course the patient should be kept without food; his stomach should be allowed as much repose as possible—he should be kept exceedingly low.

Many have a very high opinion of ipecacuanha in this disease. Dr. AKENSIDE recommends from three to five grains of ipecacuanha every six hours, and many persons still give it, and also antimony, so as to create sickness. I have no experience of any such plan. I do not see the utility of causing the patient to vomit in this disease; neither have I been able myself ever to discover the soothing effects of ipecacuanha. Some persons, when they give purgatives, give ipecacuanha, and say that it empties the alimentary canal; but, after repeated trials, I cannot say that it has any peculiar properties, except that of making the patient sick. I have been as successful in this disease as in any other, by treating it on antiphlogistic principles, without exhibiting anything to produce sickness, or any specific operation. Formerly, various preparations of antimony were given, but I really myself have not found it at all necessary.

In the chronic form of the disease, you must consider whether any inflammation still exists. There very frequently is, and it would be absurd to think of giving astringents while inflammation exists. The readiest way of lessening the disease is, firstly, to apply leeches freely over the abdomen, and throw up a clyster, taking care that the bowels shall be opened freely and regularly, and then astringents will be very proper.

There is often no inflammation in chronic dysentery. The time arrives when there is mere glut of the surface, or the surface is merely in a state of irritation, and in that condition, opium and astringents of all kinds are exceedingly serviceable; but you may do infinite mischief unless you ascertain, before you give astringents, that there is no inflammation. If there be inflammation, you must treat it by leeches, blisters, fomentations, and things of that kind: and you

must take care to see that the bowels are regularly opened, and the *fæces* discharged; because, if you exhibit astringents when there is no inflammation, you will produce it. But in the chronic form of the disease, the *fæces* are at last discharged pretty well, and no purgatives are required; still, however, the character of the acute disease so far remains, that there are acute and bloody stools; a desire to go to stool, and tenesmus.

In this form of the disease the astringents may be either vegetable or mineral, and they are best combined with opium. Infusion of kino and catechu are the best astringents I know; the tinctures may excite the pulse, and irritate the patient. Opium is very much required in this disease to prevent griping, and may be given safely in either form of the disease if inflammation be subdued, and the bowels be kept open. A good mode of exhibiting the opium, is to give *pulvis catechu compositus*; it does not irritate so much as opium.

You will find, that when catechu and kino fail, mineral astringents will frequently cure the disease; and sulphate of copper is very successful. I became acquainted with it, from hearing of a case of violent chronic diarrhœa, which yielded to nothing but copper. Dr. SURTON, of Greenwich, informed me, that he tried this very successfully in a case in which all other astringents failed. It is certainly one of the best mineral astringents; but you should not give it on an empty stomach, because then it will come in contact with that organ, and will excite vomiting. Like most acrid substances, it should not be given till after breakfast. You should give it in a pill, because all acrid substances act more powerfully if they be in a state of solution. If give in a pill it touches a smaller surface, and therefore produces less irritation than if it be diffused. It is generally right also to give it with opium, because although it is astringent, it is also acrid; but I have frequently omitted the opium with perfect safety. The smallest dose which it is worth while to exhibit, is a quarter of a grain, and this may be gradually increased up to three grains. This is the largest dose that patients will ordinarily bear; many will not bear more than a grain and a half. It produces no constitutional effect. I have known a patient take it for three years, for a peculiar kind of diarrhœa, without any such result. If it produce sickness, it will be very useful to give hydrocyanic acid with it. If you give from one to four drops of the acid, according to the necessity of the case when the copper is taken, patients will bear it without sickness or nausea, though perhaps without it there would be both. By a steady perseverance with this, or vegetable astringents, or opium, taking care at the same time to have the abdomen well covered with flannel—making the patient avoid cold, and all sorts of *ingesta* likely to irritate the alimentary canal, and at the same time supporting his strength—you will generally effect a cure. I rarely lose cases of dysentery. In the chronic form, if the intestines be ulcerated, you may still cure the disease; for it is only when there is a very great degree of ulceration that patients die from it. Ulceration of the intestines will heal as well as any other ulceration; but, of course, there

are cases in which medicine can do no good—where the intestines are hypertrophied, look as if they were worm-eaten—where the mesenteric glands are diseased, and frequently perforation occurs, and the patient is destroyed by peritonitis. Some persons, in this affection, recommend other substances—nitric and muriatic acids, united with astringents; and although you might, *à priori*, expect them to do harm, yet there is testimony in favour of muriatic acid, combined with opium, and some say nitrous acid. I never give any acids, for they will in many diseases, produce irritation and griping; and therefore I never give them in dysentery.

Now, you must alleviate the tenesmus, which is a very distressing symptom. Leeches to the arms will often cure it, because it may be inflammatory. Apply them also to the abdomen generally, if you find any tenderness. When irritation only causes tenesmus, opium, and injections of starch with opium, will be very useful. Give the tincture of opium in three or four ounces of fluid—not more—the stomach will not bear more. Bulk as well as acrimony will irritate, and therefore, to relieve tenesmus, let the bulk be very small. With the starch you may use forty or fifty minims. Sir J. M'GRIGOR praises the acetate of lead, so that you might use a solution of one or two grains of the lead, with the laudanum, in place of the starch. You will find that lead has a soothing effect on a raw surface, or on a mucous membrane.

Mercury I have never required, being always able to cure the disease without it; and Sir J. M'GRIGOR says, that it was worse than useless, unless when the liver was diseased. I have seen the motions in scores of cases white for months together; and yet, in the end, I have seen bile in them, without giving a grain of mercury. You may have this occur sometimes gradually, and sometimes suddenly. When you consider that mercury renders the patient more susceptible of cold, and that your object is to soothe, you will understand that the patient is best without the mercury.

You should, in the chronic form of the disease, bandage the patient's abdomen, either with flannel, adhesive straps, or any other mode of effecting pressure.

DIARRHŒA.

CHRONIC dysentery degenerates into diarrhœa, but diarrhœa happens every day (I may say every hour) without dysentery.

By diarrhœa is meant frequent liquid and rather copious and feculent stools (in dysentery they are not feculent) not dependent on debility of the sphincter ani.

The pain occurs, in this disease, only at the time of the evacuation. It is pinching enough, and even pretty sharp there, but it ceases as soon as the person has found a convenient place; whereas, in dysentery the griping is horrid, and is not lessened by the discharge which characterises the disease.

CULLEN says that there is no preliminary fever, and that the disease is not contagious; but there may be preliminary fever, because it is frequently inflammatory.

Now, the discharge of this disease is of all colours, and of various colours, at various times; and it is also of all fœtors—sour, fetid, and every variety of unpleasant smell; it may also be bloody, watery, mucous or purulent. Occasionally the motions are only very soft. Sometimes they are uniform in their tenacity or softness, and sometimes it is dispersed in various portions. The discharge seems merely an increased secretion of the intestines, and sometimes of the liver. Sometimes the nature of the discharge depends on some other organ. The discharge may be purulent from an abscess in the liver, or perhaps in the ovaria.

There are all degrees of this disease, and all durations of it. Sometimes nothing can be found after death—excessive secretion merely has occurred; and on the other hand, you will frequently find all the degrees of redness and congestion. You often find the mucous membrane softened, and then it may be red or white, according as it is inflammatory or not. Occasionally, the mucous membrane is found very much thickened, and is also ulcerated. Sometimes the ulceration is mere superficial abrasion, and sometimes it is very deep—it appears to have begun in the mucous follicles, which may (as in dysentery) contain curdy stuff, and sometimes pus. The follicles are frequently hypertrophied, and sometimes, without being ulcerated, they contain pus. In fact, you have all the various states of the intestines which I mentioned as being seen after fever, and in chronic dysentery. These may occur in either the large or small intestines, or both; sometimes very extensively, and sometimes partially.

The causes of the disease are, firstly, too much food. If a person eats a great deal, it must find its way; and it does so that diarrhœa is frequently an effort of nature, and the person would be badly off without it. Improper articles of food will cause diarrhœa; nature makes a proper effort to get rid of them. Frequently, new articles will occasion diarrhœa, although they are excellent in their kind. Children suffer exceedingly if they be weaned too early, or too suddenly. There is a peculiar kind of diarrhœa in infants, called *weaning thrush*. If children be weaned before nature is ready for it, or if the change be made too rapidly, they cannot bear the sudden change from milk to common food, and diarrhœa occurs; whereas, if the child be strong, and is weaned gradually, it bears the alteration in diet very well. This is precisely analogous to what is observed in fish. There are salt-water and fresh-water molluscæ, and if you put the salt water into fresh water, and *vice versa*, they will die; but if you mix the water gradually, so as to lessen the saline quality of the water by degrees, it will live in it as well as if it had been always accustomed to it; and so with regard to fresh-water molluscæ living in salt-water.

Cold is another cause of this complaint, especially after heat. The mind also has a great effect. Fear is generally considered to operate very strongly on the intestines. Malaria, and the suppression of other discharges, also cause diarrhœa. If a person have been accustomed to a running of the leg, and it has suddenly stopped, he is well off if he have diarrhœa, because if he have not he might have apoplexy.

Metastases are causes of it; if another disease ceases the diarrhœa often begins. If inflammation suddenly ceases, diarrhœa may occur. Dysentery is one cause of it.

This affection frequently is produced by, or becomes a part or consequence of other diseases. In fever, for instance, diarrhœa is very common—it becomes a part of fever. It is very common after measles; measles affect the intestines in a very remarkable degree. So again in phthisis; the same state of the body that causes that affection, at last causes a great irritation of the alimentary canal.

Besides the exciting cause of the disease itself, there are exciting causes of paroxysms, if I may so call them. For instance, when a person has diarrhœa, if he move about much he will very likely be obliged to go to stool; and on taking food many persons have a desire for a motion. Sometimes it is warm, and sometimes it is cold food which has this effect. Frequently persons can take nothing warm without having a desire to go to stool, and the application of cold to the surface will bring on the desire directly. The best thing is to sit by the fire without moving.

If this disease is slight, it is best to do nothing at all; it is generally a mere effort of nature to relieve herself from something improper which has been taken inwardly, or from the depressive action of an agent applied to some other part of the body.

But if it be necessary to adopt any measures, mild diluents, in the first instance, such as barley-water, chicken-broth, and so on, are the best things. Some persons add mild purgatives, and some give a dose of physic whenever the patient has diarrhœa, and generally there is no harm in it. If anything have been taken it may aid nature, and the disease may cease so much the sooner; but if there be merely an excessive action going on from a depressed circulation of the surface, or the passions of the mind, one cannot see the good of a purgative. As, however, generally the disease would cease of itself, a purgative frequently has the credit of curing it when it does not deserve it.

If, however, the disease run on, it may be necessary to stop it by various astringents and opiates. It is well in these cases to avoid giving tinctures, because there is frequently an inflammatory state, and an astringent is as good without the alcohol as with it. In very severe cases, sulphate of copper and other astringents should be exhibited. For what I know, you might safely give it at the beginning. I have done so; but it is too powerful an astringent to be frequently required. Sulphuric, nitric, and muriatic acids, united with opium, have in these cases been given. Dr. MOSES GRIFFITHS recommends in diarrhœa, a mixture of two drachms and a half of tincture of rhubarb, and six drachms of linseed oil, a portion of which was to be given two or three times a day. In this, the rhubarb, besides being a moderate purgative, is an astringent, and the oil is an emulcent, and thus it has a good effect in chronic diarrhœa. It is also given in chronic dysentery. It is a beastly thing—as vile as can well be conceived; and I never found it necessary to give it; but it is a good medicine in the disease sometimes.

You must always carefully ascertain whether the disease is not inflammatory; after measles it generally is to a certain degree; and you should always press the abdomen, and see whether there is tenderness; because you may in vain give diluents, opiates, and astringents, and even make the patient worse by them, if there be a degree of inflammation which you do not endeavour to remedy. I have seen many cases of diarrhœa which have resisted all the means which could be adopted, but which presently ceased on applying leeches, or a blister, to the part. In fact, this disease is frequently nothing but an inflammation of the mucous membrane, and it will cease if you apply blisters. It is frequently necessary while you are doing this, to give opium and astringents; and you may do so in perfect safety, if you attend to the inflammation.

The first thing, therefore, in cases of this disease, is to inquire into the cause. If the patient have been eating improper articles of food, you must change his diet; if there be any inflammation, you must treat it accordingly; if there be no inflammation, or not much, then you must exhibit opiates and astringents, and you will cure the disease. The mildest astringent is chalk mixture and a little laudanum; but if that will not answer the purpose, you must go on to catechu, kino, and sulphate of copper, taking care that the patient should be well purged.

This is the common form of diarrhœa; but Dr. BAILLIE described, in the TRANSACTIONS OF THE COLLEGE OF PHYSICIANS, a particular kind of diarrhœa, of which the stools are white, like thin mortar, or spoiled mortar; frothy, very copious, of a sour smell, unattended with pain, and the disease is so chronic, that it may last for years. It generally occurs in men, not in women; and more particularly in men who have been in warm climates, and suffered from liver disease. He says that the affection may be occasionally suspended, and the *faeces* will sometimes become brown; but the disease returns—the motions become white and fluid, and the affection is very rarely removed; but the patient wastes away and dies.

Now, I have occasionally seen this disease, and though Dr. BAILLIE could not cure it, I have treated it successfully in the same manner as ordinary diarrhœa. I have been successful in two cases which I have had of it, by persevering steadily with the exhibition of sulphate of copper and opium. Without giving mercury, the motions of these persons became bilious; they ceased to be white, and at last they became firm, as well as of a proper colour. One man was a patient in the hospital; he got stout, regained his looks, and would not stay any longer. His disease might return a year or two afterwards, but I kept him there a considerable time, and he remained perfectly well. He had been in hot climates, and in all respects corresponded with Dr. BAILLIE's observations. The other case occurred in a gentleman who had long been in India; and after persevering for nearly two years in the medicine, the disease has entirely ceased. He is an old man, and his constitution has altogether given way to the warmth of the climate. He had first, attacks of one thing, and then of another, but his diarrhœa is perfectly cured. Dr. BAILLIE says, that he

has tried kino, catechu, and chalk-mixture, but that they have all failed; but by persevering with sulphate of copper and opium, (sulphate of copper alone might have done,) and giving tonics at the same time, two cases have done well.

You will occasionally see in diarrhoea very considerable shreds of lymph discharged. Patients tell you that they have discharged great pieces of skin—that they are sure the coats of their bowels are coming off; and medical men have thought the same thing. Dr. BAILLIE once believed that he saw a portion of the mucous membrane come away; but he afterwards detected his error, and said that it was nothing more than an effusion of lymph, corresponding to a serous membrane, and exactly like those tubercular substances which sometimes come away from the air passages. Occasionally, a large quantity of fibrin is secreted in the inner surface of the mucous membrane in chronic dysentery, and it will come away in the form of large shreds or tubes.

I have always seen this form of the disease marked by great pain, and I have found it exceedingly obstinate. I have not seen it in more than three or four cases; but the most persevering treatment has done no good; I have merely afforded temporary relief.

DISCHARGE OF FATTY MATTERS FROM THE ALIMENTARY CANAL AND URINARY ORGANS.

There is another discharge from the alimentary canal, viz. of fat, both solid and liquid. Sometimes this is discharged with diarrhoea, and sometimes without it. Occasionally, the lumps come away with great pain; in other cases it is oil that comes away, just of the colour of melted butter.

SAUVAGES has mentioned a diarrhoea adiposa; and he says that he has known the bowels, after hard riding, pour forth adipose matter. He says that it was apparently absorbed by the blood vessels, where, being mixed with the blood, it rendered it viscid; it then partly flowed into the intestinal canal, and there covered the faeces as it were with butter. That is his description of it. I find, however, several very satisfactory cases of this disease. There is one of a woman, who discharged every day, for fourteen months, a large quantity of yellow fat, which lay on the faeces like melted butter. Sufficient was collected to fill a number of vessels, and when thrown into the fire, it burned with a bright flame; and after the faeces had cooled, it concentered of the consistence of absolute fat. But what was singular, there was neither tenesmus, emaciation, nor colliquative fever; and sixteen years afterward, she was in excellent health. This case is related by TULPIUS, but he says "What is this to an old woman who, in her seventieth year, voided precisely similar fat from the intestine and bladder?" These are singular cases, but I believe them. TULPIUS adds, that towards the close of the disease, in the last case, the patient became feverish, and in consequence emaciated; and that after death, she was little more than a parched and juiceless corpse. I find another case where a patient, for some years, had suffered pain

in the stomach; nothing relieved her, and she became worse, when one day she discharged about three pounds of fat, and from that moment speedily recovered. I find another case, where a patient discharged from his bowels, for two years, a large quantity of fatty substance; he grew thin and weak, and then died. There is a case, in the EDINBURGH MEDICAL ESSAYS, of a weaver, about forty years of age, who, in carrying a very heavy weight, felt his back-bone crack, which was attended with violent pain. He fell to the ground, being unable to stand. The pain lasted a long time, and he fancied the bone was dislocated, and so caused his neighbours to pull him, to put him to rights, and he thought himself better after it. A country bone-setter next pulled him about, doing a good deal of mischief, and giving him great pain. Three months afterwards he was just able to creep out of doors, and then he began to observe a whitish substance in his excrement, about the size of a walnut. It was like tallow, and melted by heat. For some days after he passed smaller pieces of the same substance.

There was a patient in St. Thomas's Hospital some time ago, who had diabetes, with much emaciation. In his motions I saw a quantity of fatty matter,—soft fat, which he said, was quite fluid, when discharged. For some time there was every day one or two table-spoonsful of this matter in his motions. Dr. PROUT, Mr. FARADAY, and some more of the most eminent chemists in London, pronounced it to be fat. They asked if the patient had taken any castor oil, or anything else oleaginous; but he had not. The fat passed in a fluid form, and his wife said that this was the first symptom of his complaint. Some time before I saw him, full half his motions were fat. This stopped flowing whilst he was under my care, but he died of diabetes and phthisis. On dissection, we found the kidneys organically diseased. This had caused the diabetes. The intestines looked like paper steeped in oil, but they had no other morbid appearance. No oil was found in them. Dr. PROUT says, that there is generally diseased kidney in these cases, and Mr. PEARSON, of Clapham, knew two cases in which the fat came both by the fæces and the urine. He had taken care to have the urine by itself, and therefore he was quite sure about it. In his cases, and in my own too, the motions were white and viscid. Mr. HOWSHIP mentions a case which was cured by giving the patient a pint of sweet oil. He says she took the oil, and was well from that time, though ill for a long time previously. In my case, I gave the man some sweet oil, and the discharge soon ceased; but if from the oil, I cannot tell. In HUFFLAND'S JOURNAL for 1826, you will find a case, in which this fatty matter was vomited in large quantities, with great emaciation of the patient.

The spermaceti whale has this disease, and *ambergris* is fat found in this whale's intestines. As much as 182lbs. has been found in one animal. It is said that it has never been found higher than six or seven feet above the anus. It is often met on the shore, but occasionally it accumulates, and the animal dies, either from the mass, or from the disease; I do not know which.

GASTRO-INTESTINAL CONCRETIONS.

These may be found, either in the stomach, or any part of the bowels; and may not indeed arise from the bowels at all, for they may be gall-stones. Dr. MARCET, too, says that he met with a case in which a urinary calculus was found in the intestines, from ulceration. The rectum, in this case, was imperforated. Sometimes lumps of hardened fæces are found, and then they are termed *scybalæ*. But I remember a man who had swallowed nineteen clasp knives—I saw him swallow one, because I did not believe him—I begged him to bring it up from his throat, but it was too far gone. By some he was believed, by others not. Ultimately, the knives could be felt in the bowels,—and especially in the rectum. He suffered the most horrid pain, and passed fæces blackened with iron. At last he died, from the knives cutting the intestines to pieces. The fastenings of the knives, by digestion, became less and less secure,—the handles became loose, and the blades thus cut the bowels. After death, a number of pieces were found in the abdomen, some of them having run through two or three folds of intestine. Several portions of the knives were discharged during life, and you will find them all in the museum, at Guy's Hospital. The case is described by Dr. MARCET, in the first volume of the MEDICO-CHIRURGICAL TRANSACTIONS. Sometimes magnesia and chalk, when taken in large quantities, will accumulate. There is a preparation at St. Thomas's, in which the intestine of a child is completely blocked up with a piece of magnesia. Therefore, you ought not to give these medicines for any length of time, without an occasional purgative to carry them from the bowels. I have heard of a case, in which a person suffered a great deal, and at length discharged a large quantity of powdered magnesia from the bowels. Carbonate of iron will accumulate, if not watched. But with care, you may give an immense quantity. I had a case of tetanus, in which the man took two pounds of it a day for some days. He recovered, and used to discharge balls of the carbonate from the bowels. They came in lumps, as from a horse; they were covered with mucus, and gave him no pain whatever; but then he had a clyster, to prevent any mischief. In another case of tetanus, I gave the carbonate, and the patient recovered. But if the nurses did not give him purgatives properly, he suffered from pain in the rectum,—the rectum was distended and dry, and he was obliged to pick the carbonate out. A shovel-full was found in his bed, which he had amused himself night and day with picking out. I remember two cases in which a similar accumulation took place, but in these cases it arose from the patients' refusing to let us know the state of their bowels. Dr. BARLOW, of Bath, mentions a case where sulphate of iron pills were discharged a year after they were taken, so that substances may lie in the bowels a long time. Dr. PROUT told me that he saw a case in which a lady had suffered excruciating pain, and then had passed some larks' bones. She was, like many other ladies, fond of larks, and so had munched the bones. The discharged

matter was sent to a celebrated chemist, at Tooting, to make out its nature. He ascertained that it was bone, and afterwards, by the shape, they were made out to be lark's bones. Mustard seeds will remain in the same way. A gentleman came to me with very odd symptoms, and two days afterwards, he brought me a quantity of seeds which had come away. They were mustard seeds, which he had eaten six weeks before. In another case, the patient saved them, and they produced a fine crop of mustard. Fashionable people have always some whim about them, and this of eating mustard seeds whole was one.

In cows, you often find concretions of hairs, agglutinated by the mucus of the intestines. Millers' horses are said to have concretions from the dust of the mill, and also when they are fed upon bran. In Scotland, the people who live on oat-bread, have sometimes concretions formed of the beard of the oat. The outside of such concretions as these, is like velvet. The phosphates are often mixed with the hair, or whatever other matter may be in the canal, and they become cemented with mucus. Sometimes the phosphates are found as a nucleus in the middle, like urinary calculi. The ammoniacal magnesian phosphates particularly will form around a nucleus of any kind. It may be stale fruit, a bit of bone, a pin, or a gall-stone. We shall see that it is the phosphates principally that are formed around the layer in the urinary organs. In some of these concretions, oxide of iron, oxalate of lime, muriate of ammonia, and muriate of lime, have been found. The stones on the table are some which were said, whether truly or not, I cannot tell, to be passed from the urinary organs, by a lady. It was very singular that there were two ladies at the same time discharging the same kind of stone. Dr. PROUT thought, if there was no deception, that they must have come from the intestines. There was said to be excruciating pain attending these discharges. They contain oxide of iron and phosphate of lime. Dr. PROUT considered many of them too large for the urinary passages, and that the number stated by the patient was too large. It is true that very large stones may pass by the female urethra, but then they would occasion more pain, when in the bladder, than these patients complained of.

I remember reading the case of a woman, in which these concretions were found as large as a hen's egg. This was in the stomach. The same writer mentions that he found some which weighed four ounces, in a soldier's stomach; and nine which altogether weighed three ounces three drachms. In the colon of a child one was found, which weighed two ounces and a half, and was six inches long. The child died in consequence of it. In the PHILOSOPHICAL TRANSACTIONS for 1686, there is an account of a woman who discharged many, varying in size from a pea to a filbert, and that in two years she discharged five pounds. In vol. 32 there is an account of another woman who passed some very large, one about two ounces. Sir H. SLOANE mentions a case in which two hundred were said to be discharged.

In brutes, these balls are much larger, and much more common

than in man. In a brute, one was found weighing fifteen pounds twelve ounces. They chiefly occur in ruminating animals, and in slow draught, and millers' horses, which are fed on bran.

Both in the brute, and man, these concretions are spheroidal or oblong; they take an imperfect polish, are more or less porous, and are radiated, or have layers. I showed you biliary concretions of both these kinds.

Those which are taken in small ruminant animals, such as the antelope or goat, are called bezoars. The word is said to be derived from a Persian compound—*pa-zahar*, meaning alexipharmic.

Bezoars were once so valued, on account of their supposed alexipharmic qualities, that a very fine one has fetched, in the East, six thousand livres, and has been hired in Holland and Portugal at a ducat per day. They were formerly sold at druggists shops, and from being sold at a great price, were often imitated. They are said to have concentric layers, and sometimes to be crystallized. They will take a polish, and even have a metallic lustre. Sometimes there is an accidental nucleus within, and they will rattle. They consist chiefly of vegetable matter, and some have an aromatic smell, from the circumstance of the animal having eaten aromatic herbs. It is said that only those which come from the West will polish; and that the Eastern have often a gloss of white. The mode of distinguishing the genuine from the spurious, is said to be this: if you draw a genuine bezoar over a piece of paper, rubbed over with chalk or lime, it turns it green, or olive colour; whereas if it be spurious, the colour of the paper remains unchanged. However, the matter now interests very little, since there is no longer any belief in their virtue.

Concretions in the alimentary canal, if retained, give rise to violent vomiting, gastrodynia, dyspepsia, colic, constipation, and to death. By the obstruction which they produce, you have all the symptoms of enteritis, colic, or strangulated hernia.

Of course, the treatment, whether you know the nature of the concretion or not, is the same as for colic or enteritis; but it is well to ascertain the state of the rectum. By passing a clyster up the rectum, you will have the means of ascertaining whether the obstruction is situated there. Sometimes these concretions have reached the rectum before they have been stopped.

ENGLISH CHOLERA.

THE diseases I shall now consider, will be all the affections of the stomach and intestines, and the first of which I shall speak, is cholera.

This disease is characterized by a sudden attack of bilious vomiting and purging. At first, the discharge is sometimes thin and watery, and it has been called *white vomit*, but very soon pure bile comes away; if it does not, there is no cholera. The disease is marked also by severe pain in the abdomen, with very severe spasms of the abdominal muscles and calves of the legs, and in very bad cases, even in the neck and back. There is no rigidity as in tetanus; constant

spasm, but violent contraction, alternating with relaxation, drawing the muscles up in lumps. There is great anxiety and great debility; burning heat generally at the pit of the stomach, and, as you may well suppose, from such a quantity of bile being poured forth, there is thirst and headache.

These are the symptoms which we see every autumn in this country. At last, however, from this violent pain, and from this profuse discharge, the body becomes cold, great faintness is felt, perhaps there is actual syncope, the patient sinks, loses his power, becomes excessively weak, and then everything happens just as if hæmorrhage had occurred. General convulsions occur, the spasm ceases, and the patient died as if he had lost an immense quantity of blood.

This affection may last only a few hours, or it may last many days; and if it subside, it may possibly be followed by inflammation. I have frequently seen gastro-enteritis take place after the discharge had entirely ceased.

The bile is generally found to be very acrid, and the vomiting and purging sometimes alternate, so that the more the patient vomits, the less he is purged, and *vice versa*. Besides the bile discharged, there is usually a great secretion of another fluid, no doubt from the stomach and intestines. The same state may occasionally arise from an overflow of the secretion of the mucous membrane of the stomach and intestines.

Intermittent and remittent fevers, and dysentery, in hot climates, very frequently begin like cholera. I might say, perhaps, with cholera. The disease is common in hot climates and in mild climates, in hot weather.

The principal *exciting cause* is, sudden cold after long continued heat, just the same as inflammation. Occasional falls of rain in hot climates, are particularly followed by cholera. Dr. MACULLOCH ascribes cholera to malaria, and perhaps it may be one cause; but other things also will produce it. Any violent emotion of the mind will cause it, and will induce vomiting and purging, and the discharge will be green, so that cholera is one effect of violent grief. Any acrid substance received into the stomach will produce a green purging and vomiting in some persons, and therefore will give cholera.

TREATMENT.

First, dilute the acrid bile well with chicken-broth, or any other diluent: you should also give large doses of opium, either the tincture, or in a solid form; perhaps the solid would be better. To relieve weakness, you may give brandy and other stimuli, and have recourse to the hot bath. The greater number of cases will do well with this treatment. But when, from hæmorrhage, the patient is weak, then you must have recourse to stimuli. Should the disease consist chiefly of vomiting, it may be desirable to send the bile downwards, and then you will find calomel answer best, as it stays on the stomach better than anything else. An injection too may be found very useful. After a time, if the disease does not decline, you

must watch for congestion or inflammation of the head; and if any exist, it must be treated as under any other circumstances. After the disease, it may be necessary to give tonics and support the strength, or if inflammation come on, it may be necessary to check it in the usual way; but still it is necessary to ascertain whether it is accompanied by inflammation or not, for it very frequently is so. I shall next speak of the disease of which so much has been said, and which has been improperly called cholera.

EPIDEMIC CHOLERA.

In 1817, a disease appeared in India, in some particulars like the English cholera—so far as there is a discharge upwards and downwards, severe pain in the abdomen, cramps of the extremities, and at length, of the whole body, with great exhaustion.

From its resemblance to the other disease, it was unfortunately called *cholera morbus*; but there is this decided difference in the two affections—that in real cholera, the motions are all bilious; but in this that broke out in India, in 1817, the motions have no bile in them whatever, but are perfectly white and watery. On this account, it would be better to call it leucorrhœa than cholera.

The symptoms in this affection, in India, were at first, languor, uneasiness at the stomach, nausea and common diarrhœa; and then, all at once, about three or four o'clock in the morning, violent vomiting and purging occurred, but occasionally, these took place without any premonitory symptoms. At the same time, or very soon after, successively severe spasms were felt in the extremities and abdominal muscles, so as not only to make the patient exclaim with agony, but sometimes to make it necessary for several persons to hold him. Soon the countenance became ghastly; the skin shrivelled; the features contracted and elongated; the eyes a little suffused, slightly tinged with red, and sunk in the sockets; the lips purple or blackish; the base of the eyelids likewise purple; the skin and the nails blue; the fingers both shrunk and shrivelled, exactly like the hands of an old washerwoman. At the same time there was extreme thirst; a great sensation of heat at the throat; the temperature of the whole body was excessively cold; the tongue and the breath were also cold; sometimes the tongue was quite clean and lead coloured, but occasionally it was white, and had a tough or leathery coat, and occasionally it was covered with sordes; but by no means always. The pulse became exceedingly weak and quick, and at last it could not be felt at all in the wrists, though it might still be perceived at the heart. There was extreme restlessness, so that the patient could scarcely bear the bed-clothes, and endeavoured to toss them off; the breathing became quicker than in health, and one third only of the usual quantity of carbonic acid was given off at the expirations. Both the venous and arterial blood was black, and in the worst cases the blood would not flow at all. There was no urine discharged; there was often deafness, and also tenesmus. Occasionally, however, there was scarcely any vomiting, but extreme debility—extreme loss

of bulk, shrinking of the body, the corrugated state of the fingers, and the violent spasms. These cases were considered to be worse than those in which the vomiting and purging took place. This disease differs from our cholera, in there being danger where there is scarcely any evacuations, the danger of the disease not depending upon, and being in proportion to the loss of the substance of the body. Sometimes it is said that no spasm was felt, in addition to there being neither vomiting nor purging, and this was considered still worse. The patient was said to be struck with death; his pulse became imperceptible, and death very soon took place.

The occurrence of these things was very irregular; patients sometimes were purged and vomited before they experienced spasms, and sometimes spasms occurred at the onset of the disease. Occasionally there was no blueness of the nose and about the eyelids, and sometimes there was no corrugation. Before death, the spasms, vomiting, and purging, often ceased, and the patient lay quite still, with the loss of the vigour of his mind, but with perfect preservation of his reason. He would be conscious of all around him, but wished not to be disturbed, and he would take no nourishment. The duration of the disease was sometimes only a couple of hours, and sometimes it would destroy life for the greater part of a day.

When the patient was lying in that quiet state, the pulse at the wrist would not only be still, but sometimes it was said that action of the heart could not be felt. I do not know whether the ear was employed to ascertain that. I presume it is common enough in various diseases, for the pulse not to be felt while the heart still continues to beat.

Occasionally the temperature would return before death, and hopes of recovery were sometimes entertained; but these were mostly unfounded: the patient presently sunk. It was likewise observed, that after this extreme exhaustion, the face would sometimes become flushed, the temporal arteries become distended, and throb, the patient lie in a somewhat delirious, or comatose state, much in the condition of a person in typhus fever. The voice was sweet and very peculiar.

After death an immense quantity of white turbid fluid, with flakes of very white substance, were found in the stomach and intestines, while there was no fluid in the urinary bladder, which was contracted to the smallest possible size. These were general occurrences. Usually there was neither *fæces* nor bile in the alimentary canal, but the gall bladder *generally* was found full, and sometimes it was remarkably distended; so that there was no want of bile, but more passed into the alimentary canal. The veins were usually found greatly distended with blood, so that the hepatic, intestinal, and mesenteric were remarkably distended, but those of the spleen were not quite so full. Congestion also continually occurred in the lungs and head. Sometimes there was a rosiness of the external, and sometimes of the internal surface of the alimentary canal. There was usually also a great congestion of blood in the heart itself. Dr. DAVY found the abdominal muscles flabby and red, but of course not

inflamed. The urinary bladder, although empty and so greatly contracted, had generally a sort of whitish mucus, with flakes upon the inner surface. After death the temperature of the body was higher than during life; so that a very high degree of heat was found on plunging the hand into the body. There was also another very remarkable occurrence—a twitching of the different muscles of the body after the person was completely dead; the fingers, the toes, and every part of the face, were seen to move. Observations of this kind were made on a Caffre, and on a Malay. The former died twenty hours after the first seizure, the complaint baffling the strongest remedies. In fifteen minutes after he expired, the fingers of the left hand were observed to move, then the muscles of the inside of the same arm were contracted in a convulsive manner, and the like motions were slowly propagated upwards to the pectoral muscles. The muscles of the calves of the legs contracted in like manner, bundles of their fibres being drawn together in a tremulous knot. The muscles of the inside of the leg and thigh were forcibly contracted in a vermicular manner. The muscles of the face and lower jaw were similarly affected, and finally those of the right arm and right pectoral muscle. These motions increased in extent and activity for ten minutes, after which they gradually declined, and ceased twenty minutes after they began. About fifteen minutes after the Malay expired, the toes began to move in various directions, and the feet approached each other. Muscular contractions were speedily propagated upwards, along the inside of the legs and thighs. The thighs were turned slowly inwards, so as to approach each other, and again outwards; the whole of the lower extremities moving on the heels as on pivots. These motions proceeded upwards, producing a quivering in the muscles. In five minutes the upper extremities began to be similarly affected; the fingers were extended, and often rigidly bent inwards; pronation and supination were steadily though slowly performed. The same quiverings were observable as in the lower extremities, and extended to the pectoralis, major muscles, and the superior margin of the latissimus dorsi. The muscles of the face moved, and the head was observed to shake. The total duration of these appearances was half an hour. By moving, or pricking the arms or limbs, these contractions were rendered stronger, and again renewed where they had ceased.

I will now describe the disease as seen in London.

Among the patients whom I have seen, there has been a great variety as to the mode of attack, and as to the order of the symptoms after the disease has begun.

With regard to the modes of attack, some persons have been seized suddenly, others have had diarrhœa for some time previously. The former were seized generally early in the morning, after going to bed perfectly well, and discharged by vomiting and purging a turbid whitish fluid, containing white flakes. There was violent pain in the abdomen and intestines, dreadful cramps in the fingers, toes, arms, and legs. In two or three hours from the moment of the attack, I have seen the eyes sunk in the sockets, blueness round the base of

the eyes, blueness of the nails; in some cases blueness somewhere upon the extremities, and in one case, blueness of the whole body; no discharge of urine, intense thirst, a great sensation of heat within, extreme restlessness, the tongue lead-coloured; and in the case in which the body was blue all over, covered with a white and leathery crust; a very feeble pulse, and at last no pulse whatever in the extremities, although it could be felt at the heart. The pulse and the respiration were very rapid; I have counted the respiration thirty-six in a minute. There has been a great fall of temperature, so that the hands, the tongue, and the breath, were cold. On passing a thermometer into the mouth, I have found it as low as eighty-four degrees, ranging only, at any rate, between eighty and ninety degrees. There has been a cold sweat on the extremities, and then at last the patient would remain free from all restlessness, pain, and vomiting; and would be perfectly still, conscious of everything, but with a desire not to make the least exertion; apparently languid and waiting for death. Then, before death, I have noticed the temperature rise, and after death the temperature has risen still more. In the case where there was so great blueness, no sooner had the patient died than the blueness diminished. I did not observe whether it was diminished before death, but I noticed it immediately afterwards, and in an hour there was nothing of the colour to be seen. There was a twitching of the muscles, so that one finger after death would be drawn in, and then another, and the lower jaw would move up and down, and you might see a quivering of the muscles inside the thighs. The voice was weak and very peculiar.

After death the stomach and intestines were usually filled with white fluid, containing white flakes. There were various appearances, both internally and externally, of the alimentary canal; sometimes it was rosy, and sometimes pale. The urinary bladder was empty, and exceedingly contracted. There was very great congestion in the venous system. The mesenteric veins were full, and the *venæ cavae* appeared distended to the utmost; they looked like a bell-rope in a drawing-room. The heart was observed to be full, and the blood both in the ventricles and auricles, was grumous—half coagulated. There was congestion sometimes in the head, and sometimes in the lungs.

Now, no one can doubt for a moment that the disease which happens in India, and this, are precisely the same.

It is different from the disease commonly called cholera, which is marked by a discharge of bile, and in which the danger is proportionate to the evacuations. One cannot say that this is only a severe form of common cholera, because the mildest cases are not at all like common cholera—they are not characterised by a discharge of bile. If it were severe cholera, the mild cases ought to be equal to the severe ones of the common English cholera; but instead of that, they are all characterised by an absence of bile, and by these peculiar dejections.

Again, it has been said that this is also a disease we have all seen. I protest that I never saw it before; and I think that if it had

previously occurred in London I should have seen it, from being connected with a large institution ; but I never saw any affection that bore the least analogy to it. It would not be more absurd to say that measles and common bronchitis are the same, because in both there are certain morbid appearances of the air passages, than it is to say, because there is vomiting and purging in this disease as well as in common cholera, they are the same. A variety of diseases of the skin which are distinct from each other, have an appearance in common ; and measles, scarlet fever, and other affections, were formerly all jumbled together, simply because there was redness of the skin.

The cholera that CELSUS and SYDENHAM describe, is very different from this affection. SYDENHAM says that it prevails in the autumn and end of summer, every year ; but this disease occurs at all seasons, hot or cold. In SYDENHAM'S disease, the discharge is bile, and not like what it is in this disease. I, and practitioners older than myself, consider it different from anything ever seen in England before. In India, they thought natives suffered more from this disease than Europeans. Thousands of natives died at Bombay, but only six Europeans ; because it attacked chiefly those badly clothed and fed. It prevailed at all seasons, and in all weathers ; and both in dry and moist situations. The monsoons had no effect on its progress. Its contagious nature was disputed. There was abundant evidence both for and against contagion, and you will perhaps think with the side you read last.

At last it turned towards Europe, and travelling in a north-westerly direction, it reached England. In spite of all the care in making investigations, it is still doubtful whether it is contagious or not. But here, as everywhere else, it attacked the poor and wretched, rather than the rich and well fed. Now, you find a striking contrast when you compare the ravages of the disease at Paris with those it made in London. Here the population is better fed and lodged ; they have too, no sour and trashy wines, but good sound porter and beer. They also live in less crowded houses, have a better supply of pure water, and have wider and more healthy streets than in Paris. In fact, the Parisians live on trash, slops, and vegetables ; and are in every respect better fitted to receive the disease than the Londoners, and you all know the difference in the havoc it made in the two cities. This completely accords with what was observed in India. We have in this country many observations which tend to show that the disease is contagious, and then many cases occur where we cannot imagine communication could have taken place. In the tenth volume of the MEDICAL GAZETTE, there is reference to a work by Dr. HAZLEWOOD, in which several facts are mentioned which go to prove the contagiousness of this disease ; and these, together with facts which I have noticed myself, have created a strong impression in my mind that it is contagious ; but I am also satisfied that it will spread without contagion at all. Of course, you will find a large number of exceptions to its spreading where you might *à priori* expect that it would spread. The disease has great difficulty in attacking those who are in good health, and well off ; and in this respect it

differs from syphilis, itch, and smallpox, and therefore, though thousands may be exposed to the contagion of the disease, if contagion exist, yet they will be almost sure to escape. You must take this into consideration when you consider whether the disease is contagious or not. If a number of persons be exposed to it and escape, yet it is nothing more than we should expect.

FATALITY.

In India much good was done by medical treatment. It is said, that at Bombay, where there were from 200,000 to 220,000 inhabitants, there were 15,945 cases; of these, 1296 took no medicine, and all died; but where medicine was employed, the deaths were reduced to six and a half per cent. It was supposed there, that by the administration of large doses of calomel and opium, occasional bleeding, and the hot bath, great good was effected, and that many lives were saved. Some persons gave small doses of calomel, and some gave scruples, with a drachm of laudanum, altering this according to circumstances. Others bled the patients, when blood would come; and it was said that that treatment was also very successful. Some adopted both plans. Some practitioners recommended strongly the use of magnesia, and other absorbents; indeed, one famous author says, that magnesia and absorbent specifics have saved thousands of lives.

It was well ascertained that those who were badly off, or in bad health, or accustomed to spirit-drinking, were, in London, very subject to the complaint; and in Europe generally. Probably this was also the case in India, for in all ranks spirit drinking predisposes to disease. I cannot help thinking, that if all the patients had undergone no treatment, the mortality would have been just the same. I mean, that if all the patients had been put in warm beds, made comfortable, and left alone, no more would have died than actually have; for we know no more about the proper remedies than when the first case occurred. Some say they have cured by calomel, others by bleeding, and others by opium; some again say, that these things only aggravated the disease, so that no doubt many have died uncomfortably who would otherwise have died tranquilly, without this treatment. Many have been over-stimulated by the hot bath, &c. and have died from the treatment. I tried two or three sorts of treatment. Some had opium and calomel, but they died. Hot air was applied externally, and finding that this had no effect in warming the surface, I got a tube passed through boiling water, and so had two or three breath hot air, but they died about the period that death usually occurs. I tried also the saline treatment. I gave at first, half a drachm of the carbonate of soda every hour, and afterwards a drachm; and in one patient ordered an injection containing an ounce, but the greater part of it came away, and the patient died. Hot air was used in this case, as in the others.

The chemical qualities of the blood, and of the discharge from the alimentary canal were said to be alkaline. But I have examined this discharge in several cases, where no alkali had been taken, and I found it exceedingly acid. In the case of a man who was blue from

head to foot, and who had twitches after death. the contents of the stomach were very acid, but were less and less so until we came into the large intestines where they were quite natural. In the case of the patient who took the large doses of carbonate of soda, and had an ounce thrown up, the contents of the stomach were neutral, whilst those of the intestines were acid. In the rectum, where some of the carbonate of soda remained, the contents were alkaline; but this is the only instance which I met with where it was the case. Dr. O'SHAUGHNESSY says, "the summary of my experiments may be described as denoting a great, but variable deficiency of water in the blood, in four malignant cholera cases; a total absence of carbonate of soda in two; its occurrence in an almost infinite small proportion in one, and a remarkable diminution of the other saline ingredients." It would appear from these four cases, that there is less serum in the blood, and therefore you see why it is thicker than in health. "Again," he says, "in the dejections passed by one of the patients, whose blood was analysed, we find preponderance of alkali; and we recover the other saline matters deficient in the blood." Thus he supposes that the blood loses its saline particles, that they are discharged into the intestines, and that you find them there in the same proportion as the blood has lost them. But although that may be the case, it is not clear that the dejections are alkaline—that is to say, that there is an excess of alkali in them.

I can tell you nothing about the treatment; but I know that patients feel intense heat within, and intense thirst, and find great comfort from cold drinks. In Vienna, the custom was to allow ice, which the patients took with great avidity, and derived great comfort from it.

DISORDERS OF THE DIGESTIVE ORGANS.

The disease of which I shall now speak is commonly called indigestion; but I would rather speak of it under the denomination of disorder of the digestive organs at large, because indigestion applies to affections of the stomach only; whereas, this affection implicates the intestines as well as the stomach, and indeed all the organs concerned not only in chylification, but in excretion. Now, *indigestion* is usually termed in medicine *dyspepsia*, and sometimes *apepsia*; the one meaning difficult digestion, the other no digestion, and the third slow digestion. However, all three mean the same thing.

We are now, therefore, to consider that derangement of the digestive organs which is generally attended with indigestion, but many symptoms of which take place without it. Many persons will digest very well, and yet, when they have no food in the stomach, they are filled with wind; but this ceases on food being taken.

If any organ of the body suffer severely, the stomach is very much disposed to sympathise with it. The stomach, the heart, and the head, are particularly affected when any material derangement occurs in the frame; the stomach more particularly, perhaps, than either of the others; and the intestines generally become more or less affected at the same time. In all acute cases, and violent accidents, the sto-

mach feels the shock ; there is anorexia—loss of appetite, frequently nausea and vomiting, and either costiveness or purging. The *faeces* generally become depraved in their quality, uneasiness is felt in the stomach or intestines, and there is perhaps even pain and tenderness. Very frequently the patient is rendered more uncomfortable from the sympathetic disturbance of the stomach and bowels, than from the original affection itself. In chronic diseases, the stomach and intestines are most materially affected. But besides these effects, we have these parts deranged originally.

SYMPTOMS.

Firstly, loss of appetite is a very common one, and is called *anorexia*, from a privative and *orexis*. Sometimes, however, the appetite is not lost, it is only irregular. Sometimes the anorexia amounts to loathing—the idea of eating disgusts the patient.

Sometimes the appetite is depraved, which is particularly seen in females, and is called *pica*. Young ladies sometimes will long for chalk, cinders, and they will bite glass, and when it is small enough they will swallow it. I saw a lady who ate brown paper. She longed for something to eat, but did not know what ; she wished for something that she had never eaten before. I have heard of cases where the patient longed for raw, and even live flesh ; so that some have actually eaten live kittens and rats. Some have been known to long for the contents of snuffers, and even for manure. One man ate a live pig, leaving the intestines ; but after a little while, he ate them also. There is a case in a German work, of a boy who ate all the mortar he could pick out of a wall, and being well horse-whipped for it, he then began on a neighbour's wall ; the neighbour, however, smeared it with decoction of wormwood, and he could no longer relish it ; he then sucked up the sand out of the street. He had a desire for something dirty. After this he got to some quick-lime, and was forced to drink a large quantity of water to extinguish his thirst. The mucous membrane within had got a distaste for what is called "good food," but otherwise he was quite well. I read of a girl, and also of a Leyden student, who always ate spiders when they could get them ; and no harm arose from it. I read of a man who never ate bread, from a dislike to it ; but he had a quartan ague, and then ate a large quantity ; he recovered from the ague, and then the disgust returned. You know that this disease occurs even in moral young women who do not menstruate well, as I mentioned when speaking of chlorosis ; and many pregnant women have some strange longing of this description. Women very often long for what is difficult to get, or out of season. One longed for a bit of the priest's sleeve, and contrived to get at it and bite it, not caring for his excommunication. One dipped her bread in a tar-tub. I never saw instances of this extreme nature, but everyone must have read of instances of this nature.

Sometimes, however, the appetite is excessive, so that people will eat many pounds of meat and bread in the course of a day, and this

is called *buemia*. This has sometimes occurred as a temporary symptom of another disease.

The stomach sometimes experiences also attacks of nausea and vomiting. Some vomit only the food they take; others vomit a viscid secretion; some vomit more or less constantly, and some only in the morning; in the latter case, it usually arises from drinking. When the disease becomes very severe, some will vomit on the slightest motion. Then again, you will often find people labouring under this affection, complain of intense thirst, and their tongue is covered with a yellow or creamy mucus, and is foul. Sometimes it is white, dry, and brown, but it is worst in the morning. It is frequently red at the same time, either at the tip or the edges. Sometimes the papillæ only are red; they appear separate like granules of cayenne pepper. Sometimes the tongue is red all over, and then it may be moist or dry, glazed, or dry and cracked.

The breath is frequently foetid. Sometimes the smell is sour, like that of sour flesh; sometimes is like cabbage-water; and occasionally it is absolutely impossible to stand near the patient, who has what is called a *smoky chimney*. The worst kind of foetid breath frequently arises from a depraved secretion within the tonsils. Diseased odour of the breath may also arise from a diseased bone, and sometimes from carious teeth, and other causes. This is not so disagreeable to others as to the patient itself, from there being a bad taste in his mouth. Sometimes the taste is bitter, and sometimes it is particularly offensive.

Eructions, simple or foetid, are very common in this affection. Inodorous ones are generally experienced when the stomach is empty, and probably arise from a secretion of air by the surface of the stomach; but, I presume, those which are foetid are caused by the contents of the stomach undergoing a certain degree of fermentation; or sometimes from the patient being costive. It seems that a portion of the faecal odour, if not the faeces, is absorbed; for some persons who are exceedingly costive, have very foetid eruptions, which are removed by regulating their bowels. In some, the breath becomes offensive only when certain articles are taken—something of sulphureted hydrogen is given off from the substances.

The mouth becomes often suddenly filled with watery fluid. Sometimes the patients' mouths are constantly open; I have seen patients spit a pint a day. Occasionally, the fluid is tasteless, but more frequently it is salt or sour, and is occasionally very acrid indeed; it contains a large quantity of muriatic acid. I believe it is often felt very cold; patients complain of its coming up as if it proceeded immediately from a spring.

Besides this fluid, there is often an excessive quantity of viscid mucus, chiefly hanging from the pharynx, and causing a constant desire to hawk it up. Many cases of this description are mistaken for affections of the air passages.

The vomiting may be either simple food which has become very sour and acrid, or foetid; or it may be bile; so that you have every variety of vomiting.

There is lightness and fulness of the abdomen, chiefly at the epigastrium, and chiefly after meals; frequently there is an aching, and frequently an excessive pain there. Sometimes this is experienced only after meals, and occasionally, only when the stomach is empty. This pain, if unaccompanied with inflammation, passes under the name of *gastrodynia*; and if with this there be a flow of fluid into the mouth, the two are called *pyrosis*.

The pain is sometimes sudden, comes on very rapidly, and is excruciating. It darts back, perhaps, to the spine, causes the extremities and face to become cold, the pulse to be small, and the surface pale. It is called "spasm of the stomach." Very frequently at the same time there is a discharge of flatus through the oesophagus, which is usually inodorous. This pain generally runs to the left shoulder, and down to the left arm, like that of *angina pectoris*. I have known it run down both arms, and also up the jaws, and along the teeth. Sudden attacks of this affection are seen more frequently in women than in men. The pain is not always felt in the situation of the stomach, but occasionally in the shoulder-blades, and occasionally in the ribs—even in those which are not over the stomach, though the pain is dependent on that organ. In my own case, I have occasionally laboured under this pain severely; I have got rid of it by putting my fingers into my throat, and discharging a quantity of sour stuff. Then the pain in the ribs returned again (and which, if I had not paid attention to the stomach, I could not have believed arose from that organ) by making so slight an effort as hardly to be called vomiting, but sufficient to discharge a quantity of stuff like birdlime; I have invariably found it take the pain away. The pain is sometimes felt even in the calves of the legs. Frequently, when the stomach is much disturbed, the legs fall into a state of violent cramp, the commonest cause of which is acid in the stomach.

Besides this spasmodic pain, which comes on, for the most part, suddenly, or if it exist constantly, is attended by exacerbations, and is not increased by pressure, there is frequently inflammatory pain—not *gastrodynia*, but *gastritic pain*; so that the stomach is tender on pressure, and all ingesta produce great agony. A sensation of heat is induced there, and up the throat. In some cases there will be a throbbing of the epigastrium, a violent pulsation, which has been, doubtless, over and over again, mistaken for aneurism, and which patients themselves are inclined to believe is aneurism, because in this state of things, they are much disposed to despond. This has been called *cardialgia*, and has been referred by SAUVAGES to a morbid sensibility of the part. Dr. BAILLIE wrote a paper on this subject, in the first volume of the TRANSACTIONS OF THE COLLEGE OF PHYSICIANS, in which he stated that he had been consulted several times on this affection, and which had been supposed to be aneurism; but he had not found it to depend on that. He opened persons who died of some other disease, while labouring under this, and found nothing. It is a common symptom, but you find no tumor. On pressing the part, you feel the shape as usual, and at the same time great depression of spirits, and usually symptoms of digestive disorder. SAUVAGES

describes it as a dyspeptic symptom, and he refers it to a morbid sensibility of the arterial symptom of the part. He says that it resides in the aorta and gastric arteries, and is attended by a burning sensation. It arises, in most instances, from the over-secretion of acid, and if any inflammation of the mucous membrane be present, the pain will be more severe.

INTESTINAL SYMPTOMS.

The bowels are, for the most part, irregular and torpid, but sometimes they are relaxed. The fæces are unhealthy, and frequently lumpy; but they are of various consistencies, colours, and smells. Sometimes the bile is very deficient, and sometimes there is even slight icterus. From the gastric irritation, the urine becomes high-coloured, and when much wind is generated in the stomach, the urine becomes excessive in quantity, and pale, just as in asthma. You will have, in addition to the gastro-intestinal symptoms, various others, as head-ache, particularly in the forehead, and very frequently it is confined to one brow. Sometimes it is intermittent, at other times, periodical. But head-ache does not always arise from disordered stomach, for cold or vexation of mind, if severe, will make a person very sick. But, on the other hand, it every day arises from things which disagree with the stomach. You will remember, that this kind of head-ache is hereditary in very many instances. Sometimes it will come on at regular, sometimes at irregular periods, disappearing perhaps after a number of years. I never cured a case, though I tried everything that could be devised. Frequently the mind fails,—the memory becomes defective, and the patient cannot bear study. Frequently too you have vertigo, drowsiness, and heaviness. But it is also very common for patients to awake in frights, or from night-mare, and very often they cannot sleep at all. They have also ringing in the ears, and specks before the eyes,—*musca volitantes*. The spirits are often much depressed, and the patient is restless and fidgetty. The temper is very irregular, so that you must choose your time to make any proposition; the heart too sympathises, and you may have palpitation, with even intermitting pulse. Night-mare is, as I have said, very common. There is a hollow sinking sensation about the epigastrium,—a feeling as if the inside were going to decay. Sometimes the whole belly is tumid. The skin is generally cold and dry, but sometimes it is hot.

Now true dyspepsia—that is to say, those symptoms which depend on functional derangement of the stomach, and which is worse after eating,—is attended with other symptoms. There is loss of appetite, vomiting, distant pain, and the other symptoms which I have mentioned; but you will frequently have these without indigestion. You will find people with gastrodynia and pyrosis, who will digest well, though there is stomach derangement.

They are very well when they take food, and only suffer when the stomach is empty. Some of these things are merely called indigestion. Some patients may have none of these symptoms, others may

have them all. Patients who suffer in this way, frequently become pale and thin,—they are never well, but may live for years in this state.

DISORDERS OF THE DIGESTIVE ORGANS.

THE causes of these disorders may be in the stomach and intestines, or they may not. In the first place, hernia will produce all these symptoms ;—that is to say, the person will have irregularity of the bowels, costiveness, great flatulence, gastrodynia, and indigestion ; and if the hernia go up, these symptoms may all vanish. Any pressure or obstruction may produce them. Constipation, from the neglect of the person to relieve the bowels, may do so, without the bowels themselves being at all in fault. Worms too, and substances taken into the stomach, which do not agree with it, may give rise to them. The ingesta may be unfit for any stomach, or the individual may have some particular idiosyncrasy, and may not be able to digest particular substances. Now you could scarcely say such a person is ill, because he had no right to put substances into the stomach which it could not digest. I knew a maid-servant who digested the hardest substances, but in whom fruit always produced great pain, with quick pulse, and cold sweats. An excessive quantity of food will do the same as food of bad quality. We ought not only to observe *what* we eat, but *how much* we eat, and if we over-eat, we must expect a dyspepsia crapulosa.

You will recollect, that Solomon says, “ Excess of meat bringeth sickness.” The food should be well masticated, for it was never intended that we should put lumps of food into the stomach ; on the contrary, it should be well broken up. Old people who have lost their teeth, and young ones when they cannot chew as before, and cannot live on spoon victuals, are very subject to indigestion. In addition to a wrong quantity or quality, too great a variety or mixture will cause dyspepsia. Sympathy too, with other parts, as the uterus, kidney, and brain, is a fruitful source of this affection. In pregnancy, you have nausea and vomiting, together with all kinds of strange longings. And they may occur the very next morning after impregnation, or at the time of quickening. In mesenteric disease, you will often see the digestive functions disordered. The mind has much influence. Too much excitement, or long continued depression, will bring on dyspepsia ; and indeed, is in many cases, the only discoverable cause.

The cause may, however, really reside in the stomach and intestines. Firstly, there may be debility ; secondly, inflammation ; and thirdly, organic disease. Now debility may be caused by long continued excess in diet, and in regimen. Persons may, in this way, wear their stomach out. But affections of the stomach may be hereditary, and so you may have it diseased, without any misconduct on the part of the individual. You may see it in families—perhaps the father, or mother, and children, labouring under it, without having committed any fault themselves. Certain portions of the stomach, or the muscular fibres, may become weak, as in any other part of the body.

There may be inflammation, and this may be primary or secondary. Generally it is chronic, and is induced by constant irritation. Sometimes it is merely secondary. The stomach has been affected with weakness, till at last it has become morbidly irritable, and ultimately inflamed. But you may have organic disease, and then all the symptoms are irremediable. Generally, it is the cardia or pylorus which is affected; but sometimes the body of the stomach may be ulcerated, and this may be either simple, or scirrhus. Sometimes the coats are thickened and indurated, but not ulcerated. It may be softened. And this softening may, as I before told you, come on suddenly. It may seem to have existed only a few weeks, or even only a day or two. It is sometimes decidedly inflammatory, and sometimes clearly not, the parts being quite white.

Where then the cause of the indigestion is independent of the alimentary canal, you have only to remove it, and all will go right again. And when the stomach itself is affected, you may have it curable or only controllable. But sometimes you cannot even do this. The prognosis therefore must depend on the cause of the disturbance.

TREATMENT.

First, you must remove the urgent symptoms. If anything injurious to the stomach has been taken, you should give an emetic. Give one which will empty the stomach. The sulphate of zinc answers very well. The flour of mustard has been used for the same purpose. But if the patient be of a very full habit—like an alderman, for instance—you ought to take away some blood, before giving the emetic, for fear of causing apoplexy. You should, in every case, follow the emetic up with purging. Nothing is better than eight or ten grains of calomel, followed by senna and salts. In this way you will empty the patient, and relieve him. If the symptoms be gastrodynia, and the patient have taken nothing into the stomach, you will find laudanum an excellent remedy. In the continued form of the disease, prussic acid will perhaps answer better, but not for immediate effect. Give a full dose of laudanum, for it answers quicker than solid opium. Give forty, fifty, or sixty drops every half hour or three quarters of an hour, as the dose produces none of the specific effects of opium. Sometimes it is better given in plain hot water, than in any tincture or brandy, because after any violent spasm, there is frequently inflammation. It is not the opium which produces it, but the brandy. Sometimes you have to repeat sixty drops two or three times before you relieve. Sometimes bleeding will, especially in full habits, give immediate relief,—even before the blood has ceased flowing. Venesection is one of the best antispasmodics. If tenderness come on after spasm, bleeding or leeches will be the best remedy, but it often occurs without any inflammatory shape, and then opium will relieve it. Hot applications, as fomentations, hot bricks, &c. are very useful, not merely when applied to the stomach, but to the back. A hot bath would be very serviceable. The temperature falls in spasm, and the heat is very grateful. It is often said that the

spasm is induced by gall-stones, but you are never sure of this if you have not before seen gall-stones, because an instantaneous pain may come on from having eaten some particular article, or from some other external circumstance. The pain, in these cases, exhibits no difference from the passing a gall-stone.

If heartburn, acidity, &c. are the violent symptoms to be removed, magnesia, or carbonate of soda, is the best thing to be given. They act chemically and immediately. In the stomach, there is naturally muriatic acid, and when food is taken, the acid is poured out, in some persons, in too great abundance, and heartburn is produced. If you have fœtid eructations, and an over-distension of the stomach, give an emetic. If not an emetic, two or three drachms of the common solution of the chlorurets, or any of the common acids may do.

To cure the patient, however, we must do more than merely give these temporary medicines. We must lay down a regular plan for the termination, or at least the alleviation of the complaint.

Now, if the cause be external to the stomach, we must act accordingly. Very frequently this disorder arises, in females, from the state of the uterus. The stomach is very often, in pregnancy, so disordered, as even sometimes, from the constant vomiting, to endanger life. In very extreme cases, it has been thought right to induce premature labour, for the purpose of stopping this great disorder. Generally, however, we may alleviate, though we cannot cure the nausea and vomiting, by lessening the irritability of the stomach, so as to make it sympathise with the uterus as little as possible. Simple bleeding at the arm has frequently effected this, and so has the frequent application of leeches to the epigastrium. All those medicines which I shall afterwards mention, as calculated to lessen the irritability of the stomach—as strychnine, conium, and prussic acid—will be proper. The patient should take a small quantity of food at a time.

Of course, if the disease proceed from a hernia (which is not uncommon), the application of the taxis may be the only means of curing the dyspepsia. If there be worms, you must employ the remedies to destroy them, and I will consider these hereafter.

Very frequently the stomach is not in fault, but the intestines are sluggish; and then a regular course of purgative medicines will be absolutely necessary. Strong purgatives would be improper: the best are those which regularly open the bowels. It is astonishing how long things will remain in the stomach and intestines, and then cause various symptoms. There is an account in the *PHILADELPHIA JOURNAL*, of a coagulum of milk, which was vomited two months after it was taken. I have seen a coagulum of milk like birdlime, which had remained a week in the patient's stomach, producing the greatest uneasiness; the stomach being oppressed by this particular substance. Dr. BARLOW, of Bath, published a case, in which sulphate of iron pills were discharged a year after they were taken. A blacksmith's son bolted thirty grapes, and after three months, frequent vomiting and extreme suffering, he was cured by an active purgative medicine; ten of the grapes came away whole, even then.

BARTHOLINI relates, that a coagulum of milk, as large as a man's tongue, was discharged after the patient had taken muriatic acid. He also mentions, that a patient having swallowed a swine's tooth, suffered under hypochondriasis and extreme emaciation, for two years, the tooth was then discharged, per annum, and the individual perfectly recovered. You therefore see, that occasionally the digestive organs may be disordered from articles which have remained in them a much longer time than you could imagine. If in case of disorder of the digestive organs, you suspect anything of this kind, you ought to employ strong remedies: purgatives and injections are very important. But whether this is the cause of the disease or not, it is of the highest importance to keep the bowels regular. Nothing can be worse than to give strong purgatives for this purpose, unless anything considerable is to be brought away. In habitual costiveness, strong purgatives are decidedly bad; because when you have once acted violently on the intestines, they must become torpid, and then the *faeces* accumulate again, so that you have to give another strong dose to remedy the mischief of the first; and thus the person is always costive, or taking strong medicines, and consequently he is at last obliged to take them, or become dyspeptic. One of the best remedies for this state is, a very minute quantity of croton oil—about the twelfth, sixth, fourth, or third of a drop, given regularly with rhubarb and colocynth, and if it should gripe, a small quantity of aromatic oil should be added to it. You may order one, two, or three drops to be made up into pills, and make the patient take one every night. It will soon produce one copious stool in the morning, and it may be taken for two or three years, perhaps for ever, without having its effects: the patient need not increase the doses. If, however, you give it violently, the patient will be costive afterwards.

Nothing can be more absurd than to give blue pills, calomel, and mercurial medicines, because they have a twofold operation; they both act as cathartics, and pervade the whole system, and thus make the patient weak and nervous. These medicines do more than you want; you merely require the intestines to be acted upon, and not the intestines at large to be put under the specific action of mercury. If Mr. ABERNETHY had lived a hundred years, and had done good all the time, he would not have repaired the mischief that he has done in making people take blue pills. Half the people in England have been led to fancy that they cannot live without blue pill; which does no more good than any other purgative, but renders those who take it constantly susceptible to cold, and altogether must be very injurious.

Some persons have naturally very torpid bowels—it is natural for men to have a motion every day. I presume, that in ninety-nine cases out of a hundred, it is natural for the bowels to be emptied once in the twenty-four hours; but there are some who do not have motions above once in three or four days, and they are ill if they do. I have met with such cases. Dr. HEBERDEN knew a person who, in all his life, had but one motion a month; and then, as a contrast, Dr. HEBERDEN mentions another individual who had twelve motions a

day for thirty years. This same person then had a motion seven times a day for seven years.

Women are much more costive, and suffer this with more impunity than men, on account of the pelvis being large, and the rectum descending. Nothing is more common than for women to tell you that they have been a week or ten days without a motion. You must therefore take this into account.

In cases of disorders of the digestive organs, you should always examine into the state of the other parts of the body, for this condition will take place from sympathy with the other organs.

This disease is very often caused by disorder of the brain—commonly called disorder of the mind. From anxiety, grief, and distress of mind, the stomach cannot do its duty. Excessive anxiety or grief, will not only take away the appetite, but produce a constant imperfection of the functions of the stomach, and all the symptoms of indigestion and derangement of the digestive organs. I have frequently been unable to do any material good, because the complaint evidently depended upon the state of the mind; and very frequently I have gained credit, where I deserved none, simply from the circumstance of the unhappy state of mind ceasing. I have frequently attended young ladies who could not digest—who had flatulence of the stomach, no appetite, or great appetite, everything that could be wrong—simply from anxiety, or love affairs: and as soon as the affair was settled, they ate, drank, and digested, like other people, without any inconvenience; but on the contrary, with great benefit, I have often been baffled in good treatment, from some grief or anxiety.

You should always look for any particular habit, to see whether the patient is constantly doing anything to which you can attribute the disease. Dr. CULLEN mentions two cases of dyspepsia, from patients taking snuff before dinner. In one of these cases, the disorder of the stomach was gastrodynia; and in the other, there was complete loss of appetite. Now, both these persons recovered from this dyspepsia, on being particular not to take snuff till their stomach had something on it—till after dinner. If I smoke three cigars in a day, or smoke three or four successive days, I invariably have dyspepsia. Although my stomach will digest anything in the shape of proper good nourishing food, yet if I smoke in that way, it invariably produces the most extreme cardialgia and gastrodynia, so as to make me quite miserable; and therefore I am compelled to be temperate in that respect. Many persons have this disease from going too long without food. Habit has a great deal to do here. Some persons feel no inconvenience who breakfast at nine in the morning, and take nothing till they dine at seven in the evening; and others suffer the greatest inconvenience if they fast more than four or five hours. You will find that habit will not operate on some people, in regard to this point—they feel a sinking in the stomach, they have gastrodynia induced, if they do not eat frequently. Some cannot pass above four hours, and in proportion to the labour undergone, so is the necessity for eating. You should, therefore, in dyspeptic

cases, ascertain how often the patients eat, but you should also ascertain whether they eat too much, because the stomach must not be blamed if it does not do double or treble the duty that nature intended. In the reign of HENRY THE SIXTH, the people ate but twice a day; "whereas" says HOLLINSHED, "we have breakfast in the forenoon, breakfast after dinner, and rare suppers when it is time to go to rest. Now, these additional repasts are very well left out, and each one should content himself with dinner and supper only." It should also be ascertained if the patient chews his food. Many persons gobble up their dinner as an elephant would do, instead of chewing it properly. You must also regulate the person's diet. Some nations live on fish, others on stinking animal matter, and others on vegetables. An eagle has been brought to eat bread, and a pigeon to eat meat. JOHN HUNTER brought a hawk to live on bread. If these changes be accomplished slowly, they may be well borne; but many cases of indigestion arise from persons suddenly changing their diet. It is said that TIPPOO SAIB'S English prisoners were fed upon nothing but rice-water and capsicums; and on their return, when they were liberated, they of course ate as before. The effect was, that violent diarrhœa was induced. Very frequently, persons in this respect, suffer from a change of food, and even from a change of place, from having different bread from what they have been accustomed to, and different water from that which they formerly had.

We see the effect of habit every day around us, because the lower orders will eat such food as will disorder the stomach of their superiors; without appearing to suffer from it.

Now, generally speaking, a mixture of animal and vegetable substance is the best food. It appears from the teeth, and also from the experiments made with the solvent juice of the stomach, that digestion is most likely to take place with facility, and in perfection, if the diet consist of a portion of animal and vegetable substances. Generally too the food is much better digested, if a certain degree of art be employed in its preparation—the art of cookery. Some persons, with weak stomachs, require this art in full perfection; they do not digest things, unless they are thoroughly pervaded by heat—either dry, or with moisture, and even then they require the addition of good spices.

You must also ascertain whether people eat things raw, which might be cooked. Many persons, for example, have indigestion only when they eat articles not thoroughly cooked, and some persons digest everything except raw vegetables, salad, and radishes. Generally, brown and old meat is better digested than young meat. Mutton is more easily digested, for example, than veal, and capon than a young chicken. In general, meat that is not rather lean, is better than when very fat. Fresh meat too, is usually better digested than salt meat. Salt hardens the fibre, makes it more compact, and less easy of solution. Dr. ROBINSON addicted himself to having a vomit every evening, and found that he brought up veal undigested; but when he dined on beef, very little remained, showing that the old flesh is easier of digestion than the young.

Some persons, who cannot digest a great number of articles well, can digest a piece of broiled bacon thoroughly, and now it is the fashion to take broiled bacon as a thing very easy of digestion. Mr. CUNNINGHAM, a surgeon, states, that he knew a person in whom the smallest portion of beef or mutton fat, deranged the stomach; and she was forced, before she could take gravy, to allow it to get cold, and then have it skimmed and warmed again, so that no fat remained in it, and yet she could eat broiled fat bacon with impunity.

Much liquid food also is not to be taken into the stomach, not to indulge in broths and sops, which is so much animal matter, with water into the bargain. Animal food is better taken in a compact form than in a lot of hot water, because much liquid is undoubtedly injurious to the stomach; it dilutes the gastric juice, and one must suppose must relax the stomach—must both sodden it, and diminish its powers. It is wrong to drink too much liquid of any kind, even beer and tea, were there no other reason than that I have just assigned. One of the best things to drink after dinner, is a cup of very strong coffee without milk. But dyspeptics should drink but little, and rather strong coffee than beer or water. Now, with respect to vegetables, waxy potatoes are seldom digested; greens should be thoroughly boiled, and in plenty of water. Many people do best without beer or wine, but others require some such stimulus. For some persons, port is best; for others, sherry; and for others again, madeira. Generally, however, sherry is not so liable to turn acid as the others. A mixture of wines will often disagree, when persons can bear them separately. Beer added to wines will produce more disorder than the wines will by themselves. Some say that a glass of brandy settles all,—that it is like oil poured on the sea. Some can take no wine, nothing but brandy and water. Champagne, burgundy, and most home-made wines, are sweet, and generally disagree; but still, you will meet with exceptions, and in some cases champagne will arrest the vomiting. All Rhenish wines are sour, and also claret, therefore they are improper. Generally, one wine only should be taken, and sherry usually answers best.

Suppers should not be taken unless the dinner be early; say at one or two o'clock, when you may perhaps find it necessary to allow them, to prevent exhaustion. Some persons cannot sleep on an empty stomach, therefore you must make many exceptions to your general rule, according to the circumstances of the individual. Brown bread will, from its laxative effects, answer for some patients better than white. In others again, the brown will induce heart-burn and acidity.

It is almost always right to advise patients to remain quiet after dinner; for if there be much moving about, digestion does not go on well. A person should eat so light a supper, that he may ride a mile without hurting him.

Thus, much is to be done in dispeptic disorders, without medicine at all. Discover the cause, (often merely some bad habit), and remove it. It is absurd, in every case of stomach affection, immediately to order something. You ought to learn the history and cause

of the complaint, together with all the information you can, respecting the patient's mind and habits. And you may, in this manner, often cure the affection without any medicine at all. In the majority of cases you will find the disorder arises from something forced into the stomach, from the state of the mind, or from some injurious habit the patient has contracted. But you must attend to what I have said about the diet, because some persons have such weak stomachs that they require a particular line of conduct. Articles which produce indigestion in some people, will not do so in others. But the stomach itself may be in fault, and then you must ask after inflammation—gastritis. If you find tenderness on pressure, with a sensation of heat in the stomach and throat, you must treat it as a common case of inflammation. Leeches frequently applied to the pit of the stomach, moderate purging, and mild diet, are the suitable means. Supposing we find no such marks of inflammation but morbid irritability, the stomach suffering pain on receiving food, but no tenderness on pressure; or suppose there is neither pain nor heat, but that the food is immediately rejected, you will conclude that it is a case of morbid irritability. The best remedy for this is prussic acid, in doses of one minim, three times a day, but not on an empty stomach. A dose, you will find, can be borne very well on a stomach partly filled, but not at all on one empty. All agents affect the stomach most when it is empty, because they are not diluted by the contents. It is best to give the doses after meals, as they will have a more equal effect than if given both before and after meals. You may increase the one minim dose to two, or three, and so on. If the acid produce sickness, faintness, convulsions, or pain in the head, you must stay the use of it. Tell the patient of these things, and desire him, if they occur, to take a smaller dose. But there is much difference with regard to the dose. One patient could only bear the fourteenth or seventeenth part of a drop, whilst another took seventeen minims three times a day, without inconvenience, but he could not reach above that. I have several times had patients who took eight or nine minims, but the common dose is from three to four.

Hyoscyamus, conium, and strychnine, but better still, opium, and stramonium, are given for the same purpose. Stramonium is best, because it does not constipate the bowels. I have seen stramonium cure the *gastrodynia*. You may begin with half a grain, two or three times a day, and gradually increase it, stopping if any of its unpleasant effects are produced. They are pain in the head, giddiness, convulsion, &c. and if the medicine be continued, you will bring on pain and throbbing of the temporal and carotid arteries, with thirst, and dimness of sight. If the two latter symptoms are not urgent, they may be borne; but if the others appear, omit the medicine immediately, and then give a smaller quantity. Next to stramonium, conium answers best, but very often it must be given up to ten, fifteen, or twenty grains, three times a day. When the patient's bowels are relaxed, you should give opium. The morbid irritability is best combated by prussic acid. I have frequently stopped it, even with the first or second dose; but *gastrodynia* is, I think, best

relieved by stramonium, and I have seen it cure with facility, when prussic acid had failed. The subnitrate of bismuth has also been used in gastrodynia, and with good effect; as also the ung. antim. tartariz. You should allow but a small quantity of food at a time; for the stomach, when much distended, falls at length into a spasmodic state. This is because it requires a greater effort when distended, to contract, thus producing spasm. Now morbid irritability, you must remember, will sometimes amount to inflammation, so that the first remedies will no longer relieve, and you must treat for inflammation. Very often you cannot tell whether the symptoms depend on inflammation or not, and you have perhaps to employ both modes of treatment. You put on leeches when there is tenderness, and you should give the prussic acid, &c. when the spasm is worst, but when there are both, you should give leeches, and give the other remedies. Sometimes, then, these narcotics are proper; sometimes improper; sometimes leeches will do good, and sometimes harm; so you must carefully ascertain the existence, or non-existence of any severe inflammation.

But you may have, thirdly, another case, in which there is neither inflammation, nor morbid irritability, but in which the stomach is torpid. This is what is called *cold stomach*, the patients require brandy and cayenne pepper, to digest their food. Now, in this state, such stimulants generally do good, and amongst medicines, ether, camphor, fetid substances, and ammonia, are highly useful. Dr. BAILLIE says, that, where in disorder of the stomach, viscid mucus of the stomach is discharged, compound tincture of benzoin is an excellent remedy, but where there is pain on pressure, I would not give such a stimulating medicine. It would be absurd to tell every patient to abstain from wine and rich food, for you find some persons who digest better, if they take a little spice, and a few glasses of wine—perhaps a pint. Some must have wine, and even spirits.

Sometimes galvanism to the epigastrium will be found useful. Tonics, of various kinds, are also useful in this weakness, and torpidity of the bowels, and especially iron, particularly ferrum ammoniatum, which is one of the most stimulating forms of iron. Bitters are useful, and to these, people often add soda, which is a good stimulant. Acids, as well as tonics, have been found useful, and they are often the best remedies for acidity. They destroy that state of the stomach which gives rise to it.

Nothing can be worse for people than to vomit and purge themselves in these cases, which they frequently do. These things must weaken the alimentary canal. It is right to enjoy plenty of air and exercise—avoiding confinement, but the exercise should be short of fatigue, and the patient should have a pleasurable employment, one which is constant, and without care.

DISEASES OF THE INTESTINES—WORMS.

It has been said, that nature has provided every animal with other animals to prey upon it, and make a habitation of it. It is even said

that a flea has its flea, and if so, I suppose this would have its flea's flea. How far this goes I cannot say.

However, some of these animals come evidently from without, and exist perhaps but temporarily, and these are called ectozoa; whereas those that colonize, establish themselves, breed, and become a whole family at last, are called entozoa.

As instances of these ectozoa which reside upon the skin, I may mention fleas, lice, bugs, and other delicate little animals. But there are also others which reside within, some getting into the arms, some into the maxillary sinuses, some into the stomach and intestines, some into the biliary ducts, some also getting into the cellular membrane beneath the skin. I had a patient, an infant, who discharged about a dozen live larvæ maggots, of the common fly, the child had had a chronic cough, which ceased as soon as the larvæ were discharged. I understood that it had eaten some part of a high pheasant some months before. I have had two cases in which a live caterpillar was discharged from the intestines. One of these cases occurred in a woman who was in the habit of eating cabbage stalks, when preparing them for dinner. No doubt she had swallowed some of the eggs which the moth lays on cabbage stalks, and so it happened, that one of them was hatched. Dr. GOOD relates, that a flesh fly, *musca cibaria*, or rather the larva of it, was discharged by purgatives, after producing considerable derangement. The larva of the bee, live spiders, the domestic and the horse leech, have been discharged by vomiting, and have been found in the stomach. Leeches, when they get into the stomach, will sometimes, from sucking the blood, attain such a size, as hardly to be recognized. When soldiers have been encamped on marshy ground, it has been dangerous for them to go to sleep, lest the leeches should get into their mouths, and destroy them, by producing fatal hæmorrhage. I once saw two centipedes, said to have been vomited by a girl, and there seemed no reason to suspect imposition. The animals had lived three days when I saw them. The mother said the girl had vomited a black beetle two months before. She had palpitation and pain in the heart, with heaviness of the head. Dr. DUNCAN, in vol. ix. of his MEDICAL COMMENTARIES, mentions the case of a boy who discharged four caterpillars, after a dose of calomel. Several crawled from the anus, and some jalap and calomel brought a prodigious quantity away. He likewise discharged a lumbricus. He had, it was ascertained, been in the habit of going into the garden, and eating a young cabbage-leaf. In some persons the creatures will live, and in others they would always die. In HUFELAND'S JOURNAL for 1822, there are instances of live and dead slugs being discharged by vomiting and purging. Dr. ANDERSON, of Hull, has a case in the MEDICAL GAZETTE, of a centipedes being discharged. Horses, if they swallow the egg of the common gad fly, have *bots* in their stomachs. The fly lays its eggs on their coat, and they swallow them, after licking their coat. The eggs that attach themselves to the splenic portion of the stomach, at a certain season of the year, when they become mature, they escape through the intestines, and become gad flies.

ENTOZOA.

idently come from without, are all called ecto-
as if nature destined the stomach of the horse for the
ese bots.

numerous cases of severe head-ache having arisen from
ing into the nostrils and sinuses, and also into the mea-
um. Nothing is more tormenting than a flea in the ear,
uzzing about, and making as much disturbance as a giant
ut this may be cured directly, by pouring a teaspoon-full of
he ear. I suppose it is suffocated. There is a kind of gad
h settles in the rectum, and even gets into the womb: it is
cestrus hæmorrhoidalis. The guinea worm comes from with-
its always selecting sheep. for a considerable period in the cellular
nbrane under the skin, and is the source of very troublesome
ers.

ENTOZOA.

As to those which settle regularly in the human body, colonize and
descend from generation to generation of human beings, they are
found both in the substance and cavities of the body, and each has its
particular habitation. The *lumbicus* always occupies the intestines
or stomach; the *strongyle* particularly fixes on the uterine organs;
the fluke is found in the liver, and the filaria or guinea worm is found
in the cellular membrane. The chief forms of these animals are—
round in cylinders or spindles—flattened like bobbin—and globular
or vesicular. The latter are chiefly found in the substance of organs.
LANNÆUS arranged them accordingly as they were found in the intes-
tines, or other viscera. RUDOLPHI, of Berlin, names them from their
form, and makes five classes, the first of which he calls *nematoides*.
The second he calls *acanthocephala*. These are animals of the hydatid
kind; they have no spinal canal, but distinct genital organs. There
are two sexes, and they are found chiefly or wholly in the intestines
of swine.

His third class he calls *trematoda*. These are flat, with minute
pores. These have genital organs, but no intestinal canal. The
fourth class is called *cestiodes*, which is the tænia or flat worm; The
the fifth is *cystica*. These are hydatids. CUVIER makes more sim- and
ple classes than these: he arranges in classes those which have a dis-
tinct digestive cavity, and those which have no distinct digestive cavity,
to be traced to the interior: the one is called *cavitaires*, because it
has a digestive cavity, its regular canals, and an anus; and the other
parenchymateux, because it has no thing but an uniform structure, with
no regular digestive tubes. This last class embraces the four
classes of RUDOLPHI; and those which have a regular digestive ap-
ratus, comprehend the round worm, the little ascarides, the stro-
and the guinea worm; and therefore, instead of the five kir-
RUDOLPHI, CUVIER makes but four.
I will now begin with the *cavitaires*, or according to Ru-
neomatoides.

to the
has ex
genital
and ne
under t
digesti
three t
great p
openir
to fift
disch
in v
four
sto
ro
A
t

ASCARIS LUMBRICOIDES.

These were formerly termed lumbrici, but from their analogy to the ascaris, they are now called *ascaris lumbricoides*. This worm has external integuments; it has muscles, a digestive apparatus, a genital apparatus, and some have thought that it has a circulating and nervous system. The muscles of this worm lie immediately under the skin; the fibres are twofold, both long and transverse; the digestive organs are quite straight; it has a triangular mouth, with three tubercles; the anus at the opposite end, and the genitals fill a great part of the animal. Each sex is a different individual; and the opening of the genital is near the anus. You will find it from twelve to fifteen inches in length, and as many as eighty of them have been discharged from one individual. Professor FRANK mentions a case in which the intestines were crammed full. This worm is usually found in the small intestines, occasionally in the large ones, in the stomach, œsophagus, pharynx, or mouth; (I have known a person vomit one), but its proper situation appears to be the small intestines. ANDRAL says he found a lumbricus in the pharynx. It got out of the small intestines into the stomach, from the stomach into pharynx, and one end turned down into the larynx, and there caused sudden death, having suffocated the patient. ANDRAL also saw several in the liver, having apparently crept up the ductus communis choledochus, to the duodenum. Dr. BARON saw a lumbricus in the ducts of the liver. ANDRAL says that he saw a liver absolutely perforated, with them, and sometimes they have perforated the intestines and got into the peritoneum. They have sometimes escaped externally through the integuments, or into the urinary bladder, or into the vagina. There is a resemblance in this to the common earth worm, but the earth worm is less pointed; the mouth is only a slit at the under part of the rounded head, and the anus is at the *very* extremity. The earth worm is more fleshy, more marked with rugæ, and it has a quadrangular row of processes like feet, which it can erect and move about; it has also three longitudinal lines at the upper surface, and it is an hermaphrodite. The *ascaris lumbricoides* is far commoner in children, and is rarer as people grow old.

The next worm in point of size is, that formerly called tricuris, three-tailed, but unluckily our predecessors mistook the tail for the head, and it is never called *tricocephalus*. It is very small, about one inch and a half or two inches long; it is of a violet colour, and the anterior end is much finer than the posterior; it becomes a mere point for the mouth. The posterior end of the male is bent, and it has a straight alimentary canal, around which are placed the organs of generation. This is found lower down than the last—it occurs chiefly in the cæcum, and there are generally several of them. It is much more common in infants than in others.

Another worm, which has also an alimentary canal, is the ascaris, or more properly speaking, the *oxyuris*, or drop-tail. This goes commonly under the name of thread worm. It lives as low down as

it possibly can in the rectum, and frequently makes its exit, and when it once gets out, it cannot get back, but shrinks up and perishes. It is far shorter than the other. The male is said to be about a line and a half in length, the female four lines. The organization is the same as in the other two kinds. It is generally surrounded with mucus. They will crawl out of old persons, so that they complain they have picked them off their thighs in bed. The other description, called *parenchymateux* by CUVIER, have no digestive or other perceptible organs, except instruments of locomotion. They have various forms; some flat, some long, and some spheroidal. They are the *acanthocephala*; that with two points, the *trematodes*; that with a perforation, the *cestoides*; and that of which I am now going to speak, *tænia*. These are found in the substance of the body, and in various cavities; and those which are called hydatids—*cystica*, in cavities, and sometimes they have a particular cyst.

We meet with *tænia* every day in the living subject. It is never less than several feet in length, and sometimes many yards. One author mentions one measuring 150 feet, and another saw one 300 feet. Though I never saw one so large as that, yet I have frequently seen seven, eight, or ten yards come away at once. It is fine, and has a series of articulations, each with natural pores. Dr. BAILLIE says, that the last joint has an aperture. The anterior part of the worm is very fine; the head is square, and it has little retractile hooks; there is no regular organization within—that is to say, there is nothing leading to a digestive tube. It is almost a mere amorphous mass, yet you may feel arborescent vessels about the joints, and a serpentine canal is sometimes seen at the edges. It moves in an undulatory manner.

There are two kinds; *tænia solium*, or armed *tænia*; and *T. lata*. *T. solium* is about the third of a line broad, towards the head, and has crotchets before and on each side the articulations. *T. lata* is shorter and broader, and has no crotchets. The latter usually exists in cavities, three or four in an individual, and from twelve to fifteen feet long. The tape worm is far more frequent in adults than in children, and in the dog than in the human subject; but it is said, that in the dog and other brutes, it differs somewhat from that observed in the human subject. It is more common in some countries than in other. In Switzerland the water is very bad, and *tænia solium* is very common there: the *T. lata* is not so common.

It is probable, that a great number of those worms that I have been speaking of, as entozoa, were originally really ectozoa. Many persons, on going to particular parts, have presently become subject to worms, like other people, in that particular neighbourhood. Sons who accidentally have drank bad water, have frequently at that time, most decidedly, had worms. *Tænia* may be continued to external causes; and with respect to ascarides, a remarkable case published in the DUBLIN TRANSACTIONS, where a whole family was infested with this worm, and every one who came to the house had it. Although medicines were ta-

nothing freed these persons from it; and at last ascarides, very similar, only a little browner, were discovered in a well, from which the people derived all their water. The family had resided there many years, but they now found it necessary to change their habitation, and from that time nearly all of them lost their worms. The race was kept up in the individual. Dr. DARWIN mentions, that the fens of Lincolnshire are famed for *tænia*. Sir J. PRINGLE says, that the lumbrici are very common in the remittent fevers of marshy countries, and when they have been once introduced, it is impossible to say how long they may remain: they may continue for many years. It appears to be a fact, that they may be transmitted from generation to generation. A German writer of authority says, that he found worms in the intestines of a fœtus. This is not at all surprising, because the genus may be easily transmitted from the mother to the offspring. *Tænia* have been seen in a muddy spring, only rather smaller than those observed in human beings. You know that the lower animals are easily altered by particular circumstances, and therefore it is not surprising that ascarides should be of a different colour and size, in the body and out of it. I recollect being told by a friend who had travelled a great deal in Syria, that he drank some bad water, and was exceedingly ill. He did not know what was the matter with him for a week or so, when all at once, after taking a good dose of calomel, he discharged little more than a heap of small maggots. What they were, he was not naturalist enough to inform me, but he got well, and his illness could be traced to this external circumstance. The *tænia* may come from without, and so it would appear may the ascarides, and in all probability the *ascaris lumbricoides*.

Persons who are exhausted from fever, will become the subjects of vermin. In extreme debility of the constitution, you may have a patient cleaned several times a day, and be covered with a fresh crop of vermin. So it is in general within; the weaker the body is, the more the ectozoa thrive. Bad air, bad food, and the want of sun, will contribute to their appearance. When rabbits are kept in a bad place, they become subject to hydatids. Sheep in wet pastures also become subject to these animals. There can be no doubt that children are much more disposed to ascarides and lumbrici than others; and not only so, but as age advances, the constitution frequently becomes so unfit for the continuance of worms, that they are absolutely shaken off without any physic at all. There can be no question that children cease to become the prey of worms. This is not so common with regard to lumbrici, as ascarides, and the remark is correct of these to a certain extent. The early period of life seems to favour these animals; why, I do not know. You will see some of these worms in persons of the highest health, and with a good colour.

Worms sometimes produce the most distressing effects, so as to make life a burden, and at other times they produce no symptoms at all, and a person only knows that he has them, because he discharges them. When worms exist in the alimentary canal, the symp-

WORMS—TREATMENT.

as are usually head-ache—sometimes sharp, sometimes dull, and frequently there is a stabbing of the temples; heaviness, giddiness, even convulsions; perhaps regular epilepsy: some authors mention even tetanus—depression of spirits. There is a black circle round the eyes; paleness of the face; more or less humidness of the upper lip; great itching of the nose; foulness of the tongue; thirst; offensiveness of the breath; cough, and even hæmoptysis. Then below the diaphragm, anorexia; nausea; vomiting; a gnawing pain at the scrobiculus cordis; pain perhaps all over the abdomen, or in various parts of it; pricking pain in the fundament and genitals; a discharge griping, purging; itching of the fundament and genitals; of course you do not see all these symptoms in every case. As to getting rid of worms, any brisk purgative may answer the purpose. A good dose of calomel and jalap is an old and very good remedy. Sir J. PRINOLE used to give twelve grains of calomel, and half a drachm of rhubarb. Some give gamboge, but I do not know its specific power; it produces nausea, and is not so good as calomel and jalap.

But besides these remedies for the expulsion of worms, we employ others for the purpose of destruction, and one of the best is unquestionably oil of turpentine. In the case of ascarides, which are easily known from their crawling out; from their appearing in the stools, and from the extreme itching which they cause in the rectum, it is best to give the oil of turpentine by injection. You thus send it immediately on the parts where the worms reside, you save the patient the trouble of a filthy dose, and the stomach from a great disturbance. You may give from a drachm to half an ounce to a child, mixed with gruel, and it will often bring away thousands. Adults will take a larger dose in an injection—an ounce or more; but perhaps a very large dose is not so well. It causes so much irritation, that it may produce an immediate expulsion; it may not lie long enough to kill the worms, but they may be discharged by the intestines. In case of other worms, the oil of turpentine should be given by the mouth, and the dose is then from half an ounce to three ounces. It is best not to give it fasting, lest it should create sickness, and be lost. Patients had better take it a couple of hours after some meal, and remain perfectly quiet, lest vomiting be induced. It may be taken pure, or in gruel or anything else that the patient chooses. In females, half an ounce is generally a proper dose to begin with, and it is seldom right to give more than an ounce; but in men, if they be not particularly delicate, it may be right to give two ounces. The effect it generally produces is, that of making the patient sick, purging him violently off, but occasionally it will not purge itself away, and therefore it is best to give a dose of castor oil, and repeat it every hour till the medicine passes freely. It rarely affects the urinary organs; sometimes it does. Now and then you will have bloody urine; it, a frequent desire to make water and great pain; but they will pen from the smallest doses. Large doses usually work them

reme-
urine
Th
It ap-
May
and
dr
ta
v

oil; but where they do not, I have seen these effects. Where the remedy does not produce irritation, it has been absorbed, and the urine has smelt strongly of it for several days.

The history of our knowledge of this medicine is rather curious. It appears that its use in worms was first mentioned in 1792, by Mr. MADDEN. A man had been long accustomed to pass tapeworm, and a friend advised him to take oil of turpentine. He took two drachms, and, to his great astonishment, discharged five yards of tapeworm, and several pieces afterwards. At the time Mr. MADDEN wrote, which was three years and a half afterwards, he was quite well. This fact was not in the least attended to, till a paper was published in 1811, in the MEDICO-CHIRURGICAL TRANSACTIONS, giving an account of a sailor who had been in the habit of taking gin to expel tænia, but at last it failed, and he took a glass of oil of turpentine, thinking that that was stronger. It was quite successful. It is one of the best remedies that we have; it will expel all kinds of worms. Of course, occasionally it will fail; but you should give it in large doses, and take care that it finds its way out. You should follow it up with a dose of castor oil every two hours, otherwise the patient may be brought into some danger. I have seen danger produced in a child, from inflammation of the intestines coming on, but it went away in a few hours.

We are not quite certain with regard to some of these, whether they are ectozoa, or entozoa. Those that reside within, breed within. Entozoa have particular residences; some invade the alimentary canal generally, and others reside in particular parts of the canal. The same thing has been observed with respect to those which reside on the surface. Whether they have an external origin or not, we are not quite certain. Then again, there are some vermin, small lice, which live only on the body; and it is said that if you put them into the hair of the head, they die. These have been vulgarly named *crab-lice*, but scientifically *pediculi pubis*. They thrive only on the pubis. There is a very large kind of flea which is called *chiggre*. This is found particularly among the negroes, and it is a source of great trouble to them; for it is so powerful that it gets under the skin, and there burrows and forms a bag, in which it lays its eggs, the result of which is a very troublesome ulcer. I had a patient at St. Thomas's, who had lost the nail and the extremity of each great toe, through chiggres. There was a cicatrix running across the toe, which had been occasioned by this animal. The negroes are very expert at taking them out. The great point is to remove the bag entirely; for if any part remain an oozing occurs, and no good is done. There is a story told of a person, who was anxious to have it put to the test, whether chiggres were a particular sort of flea, or only a variety of the common kind; and he therefore let one, which had got under the skin, go on burrowing, in order that he might observe their increase and habits. The consequence was, not only a troublesome ulcer, but mortification. A gentleman who has been much in the West Indies, is of opinion, that that kind of elephantiasis which is called Barbadoes leg, in which the skin becomes exceedingly hyper-

trophied; and that disease of the scrotum, in which the skin and the subjacent cellular membrane are excessively hypertrophied, all arise from chiggers.

The *dolichos pruriens*, or cow-itch, has been used particularly against the lumbrici. Mr. CHAMBERLAIN states, that the pubes of the *dolichos*, the small *spiculæ*, are scraped off, and made into an electuary, which may be given in almost any quantity. I have found the oil of turpentine so efficacious, that I have not had much recourse to cow-itch. A woman at St. Thomas's took a drachm of the pubes of *dolichos* twice a day for five days, and afterwards a purgative was given to her. The proper mode of exhibiting it, is in an electuary, made of senna or treacle. As good a mode of exhibiting it as you can adopt, is to thicken it to a proper consistency with treacle, and let the patient take a tea-spoonful of it two or three times a day. You should occasionally give a purgative. It appears to do no harm; the only inconvenience which my patient experienced, was a tingling in the mouth; but when it once got into the alimentary canal, no further unpleasant symptoms arose. The bark of pomegranate root has also been particularly recommended. Half a drachm may be given every half-hour, till vertigo is produced. It has the effect of producing giddiness, sickness, convulsions, pain in the head, and purging. There is no rule, of course, for the quantity that will produce this, and therefore it is well to give half a drachm of the bark, powdered every half hour, in some water, till the patient begins to feel sickness, or it purges him. This is particularly good for *tænia*. Steel filings have been mentioned, and a woman once took an ounce and a half a day, which was purged off with a cathartic, but without any sensible effect whatever.

The bark and shoots of the bastard cabbage-tree, and fern, have been particularly spoken of as a remedy for *tænia*. Indian pink, which is an acrid narcotic, has undoubtedly been useful. You will find a curious case in the second volume of the *TRANSACTIONS OF THE COLLEGE OF PHYSICIANS*, of a man who took two pounds of common salt in four pints of water, and by that means got rid of an immense number of *ascarides*. It is well known that salt is rather a preservative against worms. The flukes which are found in sheep, come, it would appear, from stagnant water; and it is said, that by giving the sheep plenty of salt, you may prevent them from becoming the victims of fluke. Electricity has been employed, the passing of shocks through the abdomen, and now and then a worm has come away; it has been rendered uneasy, and has endeavoured to escape. But besides those means which are necessary to expel the worms, it is of the highest importance to restore the health. There can be no doubt that worms derange the health, and if you can get rid of them, health will return; but they are frequently present on account of bad health, and therefore it is necessary to expel them by common purgatives, which often answer very well, but at the same time you must endeavour by all means to restore health, to take care that the patient has wholesome food, and to put the digestive organs into the best order you can. If this be done, worms will frequently disappear

without any other means being employed. Without doing anything to expel or destroy worms, they will very often, in children, spontaneously cease. Children are far more subject to ascarides and lumbrici than adults, and many children have them at a particular time; but as puberty arrives, the constitution is less favourable as a habitation for worms, and they cease spontaneously.

That kind of worm called strongyle, is found in the bladder. Dr. DAVIS once showed me a phial containing a large number of them, all creeping about in full animation, which came from a lady's bladder; she had discharged a large quantity of them for a considerable time. Mr. LAWRENCE has described a case in one of the volumes of the MEDICO-CHIRURGICAL TRANSACTIONS, in which from 800 to 1000 of these worms were discharged from the bladder in a year. Some of these were an inch long. They were very hard and firm. These worms cause great irritation, a frequent desire to make water, and sometimes bloody urine. In the fifth volume of the MEDICAL ESSAYS, there is an instance of one an inch in length, and as broad as the smallest part of a needle. It was discharged after having produced bloody urine for many years. What could be done in a case of this description I do not know. Whether turpentine given by the mouth would answer, is doubtful; it would find its way to the urinary organ, because it impregnates the urine; but whether in sufficient quantity to destroy the worm, I do not know. Whether it would be right to inject the bladder, I cannot tell; but first, I should try an injection of olive oil, just as I should kill a flea in the ear. Whether these worms are formed in the bladder, or come from the kidneys, I do not know.

NEPHRITIS.

In this disease there is pain in the loins, but usually on one side only. From the great sympathy between the kidney and stomach, there is very often nausea and vomiting. From sympathy among the different parts of the urinary system, there is usually frequent desire to make water. The pain is not confined to the loins, but runs along the ureter towards the bladder. The testicle of that side is generally painful and contracted, drawn up, and very frequently it is swelled. There is also numbness in the inner part of the thigh, I presume, from an affection of the anterior crural nerve. The pain is seldom felt at the back of the spine; it does not run down like sciatica, but is felt anteriorly along the course of the ureter down the testis, and down the inner part of the thigh where the anterior crural nerve is situated. The testis is indeed sometimes not only swelled, but sore to the touch; and sometimes there is a sensation of numbness as well as in the inner part of the thigh. The urine is generally scanty and red, following the course that is usually observed in any active inflammatory disease; and the kidney being the part affected, it is more scanty and of a deeper red than in other inflammations; on the other hand, the urine is sometimes deficient, and occasionally it is very pale. In rheumatic affection of the loins, the pain is usually felt on both sides, and it generally affects a large sur-

face. It runs to the hip, and if it extend it proceeds down the outer part of the thigh, taking the course of the sciatic nerve. In this affection there is no frequent desire to make water, no enlargement of the testicle, nor pain in the inside of the thigh. Motion in this disease very frequently produces pain; pain extending perhaps to the thigh, and especially about the joint and trochanter. The large trochanter is perhaps also hot and swollen; very frequently you have rheumatism in other parts, and very frequently there is profuse sweating. The absence of all urinary symptoms, if I may so call them, and the situation of the pain, in addition to the common symptoms of acute rheumatism, enable you generally to distinguish the disease perfectly. I was able the other day to make an accurate diagnosis, where there was some little difficulty in the case. There was a man in St. Thomas's hospital, who was there six or eight months ago, for a decided affection of the kidney. There was pain in one part of the back, which extended down the ureter, the testis retracted, and there was an affection of the urine. The case was treated as nephritis. But he now came in with decided rheumatism. There was pain on the outer side, lower down than the kidney; it did not extend in the course of the ureter, but particularly affected the joint, ran down the course of the sciatic nerve, and the joint was painful on motion, showing the effect of rheumatism. He did not make water more freely than he ought, but there was pain in one point anteriorly; that, however, arose from an evident circumstance—the pain ran along the glands, which were inflamed. He was treated by acupuncture, and making his mouth sore, and he soon got rid of the disease.

Nephritis may be produced by cold, like any other inflammation; but it is rarely an idiopathic disease; it more frequently is the result either of mechanical violence, or of some acrid matter that has been taken, such as turpentine, or cantharides; or it is caused by stones in it, or of some disposition, perhaps, to gout. If the disease go on to great violence, suppuration may occur, and then, of course, there is less pain; the patient may have rigors: there may be pus in his urine; the discharge may take place in that direction; or it may present itself at the back of a lumbar abscess; perhaps sometimes, however, it has been known to open into the intestines. Various terminations have occurred, all of which you may imagine beforehand. The pus has sometimes been collected into an abscess; sometimes it has appeared in separate portions, there have been so many minute specks with which the organ has been studded. The treatment consists of bleeding at the arm, cupping on the loins either alone or after general bleeding; purging especially by calomel, putting the patient into a warm bath, and low diet. Suppuration of the kidneys must be treated the same as any other suppuration. You must support the strength, tranquillise the patient, by anodynes, perhaps give *uva ursi*.

The kidneys are also subject to hæmorrhage, and when blood appears in the urine, the disease is called *hæmaturia*.

Blood may appear in the urine from an affection of the kidney

ureter, bladder, or urethra, or of some other part opening into the kidney. The blood is occasionally diffused through the urine; you see the urine containing a sediment, which is evidently a mass of blood; and sometimes you see blood discharged without any urine. If the urine be red from blood, you may always distinguish it by the eye; it is not deep orange, but downright red. You may always distinguish it from the reddest sediment produced by feverishness and inflammation; it is a true red, such as no one, I think, can mistake; but if you have any doubt, you may dip a rag into it, and you will find it stained red, without any tinge of yellow, or orange, as is the case in the highest coloured urine. After you have distinguished whether it is blood or not (and frequently it is discharged so pure, or in such a quantity, that independently of the colour, you ascertain at once what it is), you have also to find whether it comes from the kidney, or some other part. If it come from the urethra, this is easily known, because there is evident disease of the urethra. It is common in violent gonorrhœa, in stricture, and also when a bougie is passed. There can be no difficulty in ascertaining whether the hæmorrhage comes from the urethra; but the most difficult point to ascertain is, whether it comes from the kidney, or bladder. Hæmorrhage rarely takes place from the ureter.

The mode of distinguishing between hæmorrhage from the bladder or kidney, would be by observing where the other symptoms reside, whether in the loins, or down in the pelvis. Sometimes, I believe it is impossible to make an accurate diagnosis. I recollect having a case of fungus hæmatodes of the bladder, which was productive of no pain, no irritation, whatever; the only symptom was a discharge of blood from the urinary passages. I could make out no disease at all. He died under the repeated hæmorrhages, and at the autopsy, a fungus was found shooting from the bladder. But if there be any symptoms besides the bleeding, emaciation, and debility, you will observe they are situated in the loins, or about the bladder. If they be in the loins, there will be pain there—most likely sickness; perhaps tenderness in the region of the kidney. If the symptoms be in the bladder, you have pain about the pelvis, a frequent desire to make water, far more so than in the other case; there will be greater irritation. But you must remember that disease of the bladder and urethra will cause pain in the kidney, and disease of the kidney will cause irritation about the bladder, as well as the symptoms I have mentioned about the testicle. The latter show how distinct the symptoms may be, when the kidney itself is affected. Hence, sometimes there may be great difficulty in making out an accurate diagnosis; but generally, the presence of symptoms in the pelvis, rather than in the loins, or *vice versa*, or the great intensity of the symptoms at one spot rather than at another, will be the means of removing all difficulty.

Hæmaturia is either easily cured, or it may be very dangerous; all depends upon the cause. It is sometimes inflammatory, attended with signs of nephritis, pain in the loins, feverishness, quickness of pulse, a dry tongue, and so on, even with retraction of the testicle;

and will give way to the common treatment for nephritis. A bleeding or two, or purging, will generally get rid of it. When it is inflammatory, it is acute, and generally arises from some evident cause; a cold, or a blow, or some acrid substances that have been taken; the commonest of which, and indeed the only ones I ever saw produce it, are turpentine and cantharides. When it has arisen from these, it would be well to take plenty of diluents and demulcent substances. Water, with a quantity of gum in it, and mucilaginous matters in general, should be employed, in addition to anti-inflammatory treatment. Sometimes, however, this hæmorrhage is entirely passive; there are no signs of inflammation. It occurs sometimes with typhus fever, sometimes with small-pox, and sometimes with purpura hæmorrhagica. Because it is a symptom of purpura hæmorrhagica, that is no reason why it should not be inflammatory; but it will occur where that disease arises entirely from debility, as well as when it is inflammatory. Under these circumstances, the treatment for passive hæmorrhage must be adopted; and turpentine will be found very useful; but in small doses, from twenty to twenty-five drops every four or six hours. But the system requires support, and the common treatment of passive inflammation must be adopted at the same time that you employ this specific remedy.

When hæmorrhage occurs in chronic disease of the kidney—when you have seen chronic disease previously existing—when you suspect that there may be calculi in the kidney, or a cancerous affection of the organ, or any other structural disease, the same treatment must be adopted—you cannot in general lower the patient. If there be symptoms of inflammation, you must act accordingly; but generally, the administration of turpentine in small doses (taking care lest it should irritate the kidney), together with the exhibition of opiates, to relieve the pain and procure rest, and giving the patient good support, is all that is needful. The treatment will give you no difficulty at all; you have only to treat it the same way as hæmorrhage of other parts. You must consider what is the patient's strength, or debility; you must consider whether there are symptoms of active inflammation, or how far the hæmorrhage appears to be passive only. If the disease be not inflammatory, you will find that oil of turpentine is of as great use here as in hæmorrhage from the alimentary canal; but it is necessary that you carefully watch the patient, because that which is passive to-day, may, through sudden excitement be active to-morrow.

Like other hæmorrhages, it has occurred where the menses have been suspended, I once saw an instance of its occurrence after hæmoptysis had been cured. Occasionally, it will take place in men, and also in women; but more frequently in men who have been subject to a discharge from the hæmorrhoidal vessels. When the discharge is stopped, they are in the predicament of a woman who is in a state of amenorrhœa. Generally speaking, these cases are not dangerous, but require antiphlogistic treatment. If the natural discharge of menstruation has ceased, and inflammatory hæmaturia has supervened, it may be right to attempt to bring it back again. The

kidney is also subject to chronic inflammation, but you usually see the effects of chronic inflammation in the form of organic disease. Occasionally, the kidney becomes enlarged; there is no particular alteration of structure, but the organ is evidently hypertrophied, and perhaps firmer than usual. I presume this is an inflammatory affection: over-nourishment must be, one would suppose, more or less of an inflammatory nature; and that from the great activity of the circulation, deposition has taken place.

Sometimes the kidney will become very turgid and red, merely from difficulty in the circulation. Sometimes after great dyspnoea—after obstruction of the heart—after obstruction of the lungs, the kidney has, on cutting it open, been found full of blood, so that you might at first mistake the appearance for that of active inflammation. But if there be active inflammation, the kidney is generally found soft, whereas the effect of chronic inflammation of this organ is either induration or hypertrophy. Frequently the kidney, instead of being red, is pale. After death has occurred through chronic disease, the body is generally found to be wasted; and not only is the brain, for example, and the muscles pale, but the kidney also. The kidney however is sometimes pale from disease of its own, and then it is generally firmer and harder than it should be. I have spoken both of red and of pale induration, and each of these occurs in the kidney. But the kidney is sometimes very red or pale, only in spots, and then it has a mottled appearance. Morbid paleness usually occurs in the cortical part, but sometimes the whole kidney is in this condition. Hypertrophy, attended with redness when it is partial, occurs in the cortical portion, and that also will cause a mottled appearance. There may be a mottled appearance from one part becoming morbidly pale, while the other retains its natural paleness. Occasionally the kidney is granulated; small grains more or less firm, are seen in the different parts. Whether this is local hypertrophy or not, I do not know; but it is found most frequently in the cortical portion. These grains are of all numbers and of all sizes. Occasionally, the kidney becomes excessively soft, so that you may break it up with your fingers, and this I presume may occur very rapidly; and judging from what occurs in the spleen and liver, I should think that the softening may be very rapid. I know that softening of the spleen or liver will take place in a few days; a person shall be perfectly well, be suddenly taken ill and die, and you will find these parts so soft, that you can run your finger through them in every direction, break them up in a moment, and therefore I can conceive that the kidney may become soft, either in an acute or chronic way. When this organ is soft, there is the usual difference—that is to say, the softening is sometimes accompanied with redness, and sometimes with paleness. Sometimes there is an inflammatory softening, and sometimes this change appears to take place, without any connection whatever with inflammation.

The kidney will sometimes waste, and if one waste, it is usual for the other to double its natural size, in order to perform the duty of both. Nothing is commoner than to find one kidney enlarged,

in proportion as the other is diminished. This wasting of the kidney will sometimes proceed to such an extent, that you will scarcely find any remains of the organ at all. I have met with cases where the kidney was discovered with the greatest difficulty, so that those who have first examined the body, have said that there was but one kidney. What is termed a *horse-shoe* kidney, is, where there is only one. These however are rare cases; but the organ is sometimes wasted to a less size than a horse bean. Atrophy of the kidney sometimes occurs without any ascertainable cause; sometimes it is the result of inflammation; sometimes of abscess. A great discharge will cause atrophy of a part of the organ. We produce counter irritation for the purpose of reducing morbid growths and morbid activity of the circulation; and if without morbid growths and morbid activity, a discharge takes place by suppuration, the activity of the part is diminished, and wasting is a very common occurrence. An abscess therefore will occasion a part to waste, according to the general principles on which we employ setons and issues. But pressure will have the same effect; the pressure occasioned by a tumor in the neighbourhood, has produced atrophy of the organ. Some say that atrophy of the kidney is sometimes partial, so that the medullary portion only is wasted, and the pelvis becomes a mere bag. Sometimes the cortical part is wasted, so that the cones within the kidney touch the fibrous membrane externally, and there is only a thin layer of cortical substance between. Thus there are various degrees of atrophy, which have all been considered as a frequent result of inflammation. There are other diseases of this organ. Serous cysts are very common in the cortical substance, and by their pressure and growth, they will cause an atrophy of it, and as they increase, they cause more and more atrophy, till there is little more than a bag left. CRUVEILHIER has given a very good representation of these cysts. They are found more commonly in the kidney and liver, than in any other parts of the body. Serous cysts are sometimes found under the external membrane of the kidney.

The kidney has sometimes been converted into fat. I presume a great deposition of fat has taken place in the cellular membrane under the external coat, and the rest has wasted. Sometimes it has been converted into jelly. There is a peculiar substance formed in the kidney, called cholesterine; and the kidney sometimes contains a great quantity of it, causing atrophy of the kidney itself. Occasionally encephaloid disease occurs in this part. You may have great disorganization of the kidney—you may have tubercles of various kinds, and even scrofulous tubercles of various kinds have been found here. All these diseases may occur with very obscure symptoms, but sometimes they occasion dull pain in the region of one kidney, together with more or less disturbance of the stomach. Wasting away produces more or less disease of the kidney itself. The diagnosis is generally difficult unless the pain is very local, and unless the urine becomes morbid—very much affected; but even then, when you have satisfactorily made out that there must be organic disease, it of course must be very difficult, if not impossible, to say what that organic disease

is. Scirrhus is said to occur in the kidney; but whether the affection is scirrhus, cancer, encephaloid disease, or a mixture of these, or a scrofulous suppuration, it must be difficult to determine. If organic disease occur in a young person, and there is not much pain, you may suspect that it is encephaloid, if there be strong marks of scrofula—if the ends of the fingers be enlarged—if there be mesenteric disease or phthisis, you may suspect that the affection of the kidney is scrofulous; or if the person be advanced in life, you may suspect scirrhus or cancer. But whatever it is, can make no difference to the treatment, which must be conducted on general principles.

The renal capsules are rarely diseased, except from scrofula; but I have frequently seen them scrofulous. Sometimes they are indurated, and the induration may amount to cartilage, or even bone. Nothing can be said about the symptoms. Dr. BAILLIE states that the kidneys are more frequently diseased in men than in women.

FUNCTIONAL DISEASES OF THE KIDNEY.

THE kidney is subject to an increase or decrease of its secretion; to secrete morbid urine; to secrete a substance which it ought not to form in that particular way, or if it does produce it, should pass off with the urine; and besides these affections, the urinary organs are subject to worms. The first disease of which I will speak, will be a diminution of the secretion, and this is called *ischuria*. The suppression, absence or diminution of urine, which occurs in the kidney itself, is called *I. renalis*. If urine be formed in the kidney, but cannot escape, from some obstruction in the ureters, then it is called *I. ureterica*. If there be some obstruction in the bladder, it is then termed *I. vesicalis*. If there be an obstruction in the urethra, it is then denominated *I. urethralis*. There is no analogy in these different words. If the urine be suppressed—that is to say, if none be found—we call it *suppression of urine*. If, however, it be formed and cannot escape, we call it *retention of urine*; so that *I. renalis*, and *I. vesicalis*, are not at all analogous, and young beginners are often laughed at in the wards, for saying suppression instead of retention, and *vice versa*. The suppression of urine—a deficiency of the secretion may be entirely inflammatory, and then you have symptoms of nephritis, and you must treat it as inflammation. But sometimes this complaint is unconnected with any symptoms of inflammation of the part, and it is certainly then a curious affection, for it is usually followed by apoplexy. No urine, or scarcely any, is made; but at last, absolutely none; you feel no fulness of the bladder—you pass an instrument into it to ascertain whether it is a case of retention or not—you find the organ empty—and generally the patient very soon becomes drowsy; which drowsiness increases, till he becomes decidedly apoplectic, and perhaps dies. Dr. PARR mentions a case where no urine was made for six weeks; and HALLER quotes an instance in which none was said to be formed for twenty two weeks; these are very chronic cases. The disease has sometimes been ushered in with rigors, and sometimes not. Sometimes it has occurred without any

particular symptoms, till coma has made its appearance. Following the course of diseases of the kidney, it occurs more frequently in men than in women. It usually takes place in fat people who are upwards of fifty years of age.

When the urine has been so suppressed, occasionally, it has evidently escaped from some other part of the body; and when the urine has not been suppressed, but has been formed, and not able to escape, it has been absorbed, and has passed through some other organ. I know instances myself, where it has been vomited; I saw a case where it passed from the skin, particularly from the palms of the hands. Persons in these circumstances, who have made no urine, or whose urine, when secreted, could not escape, have occasionally vomited a fluid, which smelt and tasted, and had all the qualities of wine; others have passed it in the form of sweat. There can be no doubt of the truth of these cases. I presume the fluid has been absorbed in the latter case, and re-secreted; and in the former case, it has been secreted originally, and has not been absorbed at all. In *I. renalis*, people very often become apoplectic, and it is a very dangerous disease. I have had a case of it, and that occurred after a person had taken a quantity of corrosive sublimate by mistake. Proper means had been used, and no harm was thought likely to occur; but after a certain time the urine became suppressed, and I think the individual had hemiplegia, but I recollect perfectly that he became drowsy, and the drowsiness increased till he became decidedly apoplectic, and died. One might imagine such a case, that the same occurrence must have happened as when the urine has been vomited, or has been thrown off by perspiration, viz. that the urine was re-secreted into the ventricle of the brain. One would say *à priori*, that that was likely to occur; or if no urine was secreted, that an excessive quantity of fluid would be found within. Nothing, however, of the kind was discovered; in this case, there was not only no urine in the head, but no excess of fluid in or upon the brain; that was a result for which we were not prepared.

The proper mode of treating these cases, is to give cantharides, which I know is a proper medicine. In the case I saw, a blister was applied, and the medicine was given internally, but the patient died within a few hours of its exhibition. A friend of mine had two cases, which occurred nearly together, in old people; and one of them was so bad, that Sir ASTLEY COOPER had little hope of saving life, but he treated the case in a way which he said had been found to be successful, and the patient got perfectly well. In the second case, my friend adopted the same plan, and it was attended with the same success. In the latter case, it appears that the kidney had become torpid, but not through inflammation. It is said that cantharides should be given internally, and a large blister applied to the loins, in order that the medicine may have more effect, because the surface has much influence over the internal parts. When it is exhibited internally, it should be in the solid form, because the tincture is a most uncertain preparation. You should give a grain once or twice a day, or every eight hours, according as you choose. A grain is a

pretty full dose ; but in a case of this description, there is no time to be lost, apoplexy may soon come on ; and you should repeat the dose as long as it does no harm. I have given ten, fifteen, or twenty drops of the tincture without any effect ; and at last I have been obliged to give two or three drachms. The tincture, I presume, was not good ; but I have so often found the tincture, either bad from its nature, or bad from its being so continually ill-made, that I place no confidence in it in a case of life and death, when there is no time to be lost.

DIABETES.

The term diabetes is derived from the Greek word *διαβαίνω*, to stream through the disease being characterised by the streaming away of a considerable quantity of water. This affection, on account of the excess of fluid, has sometimes been culled *hydrops admatulam*—chamber-pot dropsy ; but as there is no accumulation of fluid, it would, of course, be very improper to call it *dropsy*. In dropsy, there is an accumulation of fluid, not merely a formation of it ; it is formed faster than it comes away, and therefore it is termed dropsy : but as in this disease the water comes away, the word dropsy has been applied to it with the greatest absurdity. Diabetes is usually employed to signify *chronic* excess of urine. A person would not be said to have diabetes if he merely made a large quantity of urine, for a day or two. The fluid may be either of a natural quality, or it may contain sugar. As, however, there is no distinct single name for that disease in which sugar is formed in the urine, and as it is sometimes formed without the urine being at all in excess, it would be well, perhaps, to restrict the term diabetes solely to saccharine urine ; and to give such a name as *polyuria* to that form of the disease in which there is merely excessive quantity. But you find diabetes employed to signify a chronic excess of urine, whether there be sugar or not ; the one being called *D. insipidus*, and the other *D. mellitus*, honey-like, sweet to the taste. The ancients applied this term to an excessive quantity of urine ; for they do not seem to have been aware that in diabetes the urine was ever sweet. I believe Dr. WILLIS first pointed out, that in this disease the urine was saccharine.

There is a temporary excess of urine in various diseases. In asthma, for example, a large quantity of pale urine is frequently made. So again in hysterical and dyspeptical people this often happens. Fright will also cause a temporary excessive quantity of urine ; so that persons who have been waiting anxiously to be called into a room, have been obliged to walk out twenty times in the course of an hour. Long continued grief and anxiety have the same effect. I have known persons from leaving off some of their clothes make a considerable quantity of urine, and it has been remedied by wearing their usual quantity of clothes again. But independent of the circumstances I have now named, there is sometimes an excessive quantity of urine formed not at all impregnated with sugar, and occurring without any evident cause. This form of the disease, which sometime

has been, and might as well be called polyuria, is occasionally followed by diabetes mellitus; but sometimes it exists alone, and I believe that not unfrequently, after a length of time, it will cease. This incipient diabetes is more common in women than in men. The urine is generally very pale, and if it continues there is thirst and dryness of skin mechanically produced. An excessive secretion of water is going on in one part of the body, and there is therefore less water for the secretions of the mouth and skin. From the loss which the body sustains, there is also weakness and hunger.

This condition may frequently be recovered from by wearing warm clothing, employing the hot bath, or going to a warm climate, and by the exhibition of iron. Persons who have laboured under this form of the disease, have, by medical men who have not properly examined the urine, been said to be cured of diabetes, as though they had the saccharine form of the disease. In diabetes mellitus, or true diabetes; there is sugar in the fluid; and generally, there is an excessive quantity of fluid also. The general symptoms that I just now mentioned, are produced in this affection. From the loss which the body sustains, there is great debility; from the body losing its nourishment there is hunger; and for the want of fluid there is thirst, and dryness of skin. The hunger is sometimes excessive, so that the patient not only feels very hungry at the usual time of his meals, but he feels hungry during the greater part of the day. The food which the patient takes, does him (he says) no good; and he is presently anxious for more. Patients complain, generally, of a sinking at the pit of the stomach; and the uneasiness there, usually amounts to aching. The thirst is sometimes so great, that many quarts of fluid are drank in the course of the day; and the skin is sometimes so dry that the hair falls off. The feet and hands are frequently cold; there is lowness of spirits, and almost always feverishness and fretfulness. There is also one very remarkable symptom—the loss of sexual power and desire, which has been the first noticed by the patient. There is also frequently pain in the loins, but whether this arises from an affection of the kidney, or is merely a symptom of debility, I do not know. Although the whole body becomes emaciated, there is frequently œdema of the legs, and usually there is costiveness. From the deficiency of fluid in the alimentary canal, there is not only dryness of the skin and throat, but the tongue is sometimes white and clammy; frequently, however, it is smooth and red, and the saliva and mucus are excessively tenacious, so that the patient is very much annoyed. The gums are sometimes very red, and slightly ulcerated. The saliva is occasionally sweet, and so is the breath. Dr. LATHAM says that the body smells like hay. Very often there is redness and soreness of the end of the urethra; I have seen phymosis; this may, perhaps, arise from the irritating quality of the fluid. We usually find the pulse quick, perhaps full; and at last it becomes weak. There is a hectic appearance in the patient's cheek; you frequently find a flush upon his cheek as well as quickness of the pulse, and at last you have decided hectic. In many cases there is great sweating. I have frequently

seen it. Phthisis is a very common termination of this complaint ; indeed, the majority of patients whom I have attended, died of phthisis. The urine has a particular odour, which is not perceived by smelling the pot ; but if you partly fill a phial with it, on withdrawing the cork you may perceive a peculiar smell, something like peppermint. It has also a sweet taste, which you may also ascertain by desiring the patient to taste for himself. Generally, the urine is clear, and of a lemon colour. Besides the presence of sugar, there is usually a diseased secretion altogether.

Professor FRANK saw a case, in which forty pints of urine were made in a day on an average ; there was sometimes as much as fifty-two pints. He says that other authors have mentioned fifty-two pints being discharged. He also states that he saw a case, in which the quantity voided, in a very few days exceeded the whole weight of the body. Usually, however, the quantity of urine discharged, is from six to twenty pints *per diem*. On the other hand, the urine is sometimes very little increased in quantity, and sometimes not at all. Professor FRANK mentions a few cases of the disease where the quantity was not increased, but it contained so much sugar, that from two pints of fluid six ounces of saccharine stuff were obtained. One patient of mine made at last but three pints of urine a day—which was less fluid than he drank. Dr. HEBERDEN mentions a case in which the urine made was double the quantity of the fluid drank.

Dr. DOBSON procured an ounce of saccharine extract, by evaporating a pint of urine. CRUIKSHANK obtained three ounces and a quarter from thirty-six ounces troy, and found the specific gravity to be 1.040. From ten pints of urine he obtained a pound and a quarter of solid extract. Dr. PROUT, from a pint of urine, of specific gravity 1.050, obtained two ounces of thick stuff, and from this he procured one ounce and a half of sugar. FRANK says, that from twenty-four pints of urine he obtained twenty-six ounces of saccharine extract. This sugar is like that obtained from grapes.

From the presence of sugar, the urine undergoes a kind of vinous fermentation ; so that it will sometimes burn like spirits. After this the urine becomes sour, as in other cases where sugar is concerned. There is also very often but little urea in the urine—but little of lithic acid, and but little of the usual salts. They are generally deficient in proportion as the sugar is formed, but they are not wholly absent. Now, the specific gravity of the urine depends on the quantity of sugar. Healthy urine is usually 1.010 to 1.018 ; but diabetic urine is from 1.030 to 1.050, and perhaps even more ; and all is owing to the sugar. It has been thought that the sugar is dependent on the deficiency of urea. They contain exactly the same quantity of hydrogen ; but sugar has twice as much carbon and oxygen as urea has. Therefore, it has been thought that there is a morbid change—sugar for urea. But the rule, although very common, is not without exceptions, that the sugar and urea are in an inverse ratio ; and I have seen urea exist to a considerable extent in true diabetes. On this account, I cannot think that sugar is merely altered urea. DU-PUYTREN and THENARD assert, that before the salts and urea re-appear,

after the disease takes a favourable turn, albumen is found. Dr. PROUT says, that in the worst form, you find albumen along with the sugar. In a fatal case of mine, not long before death, there were albuminous flocculi, and these flocculi increase the fermentation which the urine experiences from the sugar.

Now, it is pretty certain that no sugar is found in the blood of diabetic patients. Dr. PROUT says, he has sometimes seen something *like* sugar. Dr. WATTS, of Glasgow, says the blood is a little like treacle, and of a bluish colour; but this is not an invariable circumstance. The serum of the blood has a white fluid swimming on it, and the blood was buffed. Thus, you may have these things when the urine contains sugar, but they are not dependent on each other. VAUQUELIN found no sugar in the blood of a patient whose urine consisted of one-seventh of sugar; and neither did he find any urea in the blood, though the patient took, by the mouth, a large quantity for some days. In this case, too, the blood did not putrify so soon as in health. In one case of my own, it was found that the more sugar the urine contained, the larger was the quantity of carbon discharged from the lungs. Now this disease may last for years, and may end in phthisis. Diabetic patients often die phthisical. Sometimes they die from mere exhaustion; at other times they die suddenly; but the most common terminations are by phthisis, and by exhaustion. It may destroy in a year or two, or it may remit, or it may be cured. Dr. GREGORY knew a case in which the sugar ceased in two days, and did not return. Usually, in proportion as the quantity of the urine becomes less, so does the proportion of sugar. The urine may diminish, and yet the sugar be the same; or it is said that the sugar may become less, whilst the urine still remains in excess; but I have never seen this. As, however, the sugar absolutely lessens, so do the salts, the lithic acid, and the urea, generally increase. The colouring matter of the urine is usually deficient, as well as the lithic acid and salts; and sometimes the sugar disappears entirely before death. I have seen the sugar cease suddenly, and the patient die in three or four days. Now, with respect to morbid appearances, you will often find none whatever. I have seen several cases of this kind. Sometimes I have seen the kidneys a little paler, or a little redder, perhaps rather larger, but often I have not seen even that. The ulcers are said sometimes to be florid; but certainly, morbid anatomy alone gives you no explanation of the disease. In fact, you see nothing more than what you would expect from the kidney having been so much overworked; and whatever be the cause of the saccharine secretion, *that* certainly does not explain it. Both adults and children may have the disease, but it is not so readily observed in children. It occurs more frequently in men than in women, and in some countries than in others. It is rare in Germany and Italy, and far less common in London than in Edinburgh.

Now, grief will produce it; chills too, especially when in a state of perspiration, will do the same. Sometimes it seems to arise from sprains in the loins. Whisky may perhaps induce it, but I do not know if they have much of it in Ireland. In Scotland, they certainly

have. Dr. LATHAM and others have seen it come on after boils. Excess of venery is a cause. I however, saw it in one case where the man denied ever having known a woman; but I think, from the length of the prepuce, that he had indulged in a less creditable excess. Sometimes there is no evident exciting cause at all, and often it seems hereditary. A German writer relates a family, in which seven cases occurred. Dr. GREGORY knew three cases in one family; and Dr. PROUT knew a mother, an uncle, a brother, and a sister, all affected with the disease.

Diagnosis is easy enough, by measuring, weighing, and analysing the fluid. You find a brown, treacly, sweet extract. This is sugar and not urine, so no one can object to taste it. Evaporations leave only hard-bake, which is like any other hard-bake. But although easily made out, yet it is a disease which is continually overlooked. Patients complain of being weak and languid, do not know what is the matter with them, and yet the quantity of urine may not attract their attention. The disease comes on very suddenly. I have known so many cases passed over, that when I see a patient complaining of sickness without any evident cause, I always question him as to the state of the urine. Not long ago, I saw a patient who must have had diabetes for years. He was dying of disease of the heart; and it was not till I saw him three or four months afterwards, that he spoke of the quantity of his urine. I evaporated it, and found it diabetic. Therefore, when you see a patient emaciated, complaining of thirst, with a good appetite, and a dry skin, and you can see no reason, either in the chest or abdomen, for these symptoms, it is always well to inquire into the state of the urine. Some think the disease is seated in the kidney, others in the stomach; and many symptoms are as easily explained on one supposition as on the other. Some are referrible to the mere discharge of fluid; such are thirst, and the dryness of skin. So again, the costiveness, emaciation, hunger, debility, and the sensation of sinking at the stomach, are all referrible to the mere loss of so much substance as must be lost, in the production of so much sugar. But the absence of sugar in the blood, and the very frequent absence of dyspepsia, or anything connected with the stomach, except the hunger, make me think the disease is seated in the kidney.

TREATMENT.

Perhaps this is the most singular disease in the economy: its nature is not known; and the treatment which is found useful, is as singular as the disease, for the remedies are directly opposite. There can be no doubt that repeated venesection has lessened the symptoms very much, and it is sometimes borne remarkably well. No violent bleeding to syncope, but repeated bleeding, from half a pint to a pint. I have employed this, and seen it borne in a remarkable manner. In many cases the urine diminished, and the quality improved, while venesection was going on, but it has frequently failed. Some prefer the application of leeches to the epigastrium, and some cupping on the loins. Then again, many persons have had their

urine improved, by being confined to animal diet—a practise directly opposite to bleeding. But still, one would imagine that it would merely relieve, like giving carbonate of soda, for acidity of the stomach, or phosphate of lime, in softening of the bones; it is merely alleviating, not curing the disease. Besides, you will find it almost impossible to induce a patient to live on animal diet, they become so disgusted with it, and would prefer starving to eating nothing but meat; therefore, you must persuade them to take as much meat as you can, and you will find as strong evidence in its favour as in that of bleeding. Opium has undoubtedly great power over the disease. It increases the lithic acid and urea, and lessens the sugar. I have seen this over and over again; and a very great quantity will diminish the urine itself as rapidly as sugar. I once, finding a man dying of the disease, gave him opium so freely as to produce stupor, and some degree of delirium; and in the course of sixty hours the urine was reduced from eight pints to two, and it lost the greater part of its morbid specific gravity, and the whole quantity of sugar: urea was produced in excess. The man, notwithstanding, died a few days afterwards of phthisis. In general, by giving opium, and by increasing the doses, you lessen the quantity of urine, and also that of the sugar. Of course, the opium may be increased in diabetes as in any other disease; and one man, who began with half a grain three times a day, took at last two scruples three times a day, without confining his bowels. The urine became natural, when by some mistake he had forty grains of blue pill, which he took three times a day.

Thus, there was an absence of the opium and a presence of the blue pill, a strong purgative—a strong mineral poison, and instantly the sugar was brought back into the urine in the original quantity, and the urine also was increased as before. The opium was renewed, but I never made any impression on the disease afterwards. I do not know if the benefit from the opium would have been permanent, but I never succeeded with the same doses of opium in making any impression.

It is said that other narcotics answer as well as opium, but I do not know how this is. However, I do not know that I ever cured it, even by opium; for they may *appear* cured, but perhaps you do not see them afterwards. By opium, by animal diet, or by any other means, I do not know that I ever cured a single case. Of course, I am speaking of saccharine diabetes, for diabetes insipidus may be effectually removed.

The steam and hot baths have been strongly recommended, but I have not derived any natural benefit from them. Iron, particularly the phosphate, has been recommended. I have employed the carbonate, and it appeared useful, but I never saw it cure the disease. I have not had sufficient experience of the disease in children, to say whether it can be cured. I saw a child about two years ago, making an excessive quantity of urine, which was said to be saccharine; but this only lasted a few days. I will not assert that the disease is never cured in children. Alum, catechu, and astringents, are said

to have cured the disease. But what I would recommend, if the patient's strength would bear it, would be venesection, and a confinement as much as possible to animal diet; and there is no reason why you should not give opium and phosphate of iron. These all act in a way that we do not understand; and we are not sufficiently acquainted with the disease to say that they will not do good; and if I found a remedy serviceable, I would advise a patient to use it. It is right always to wear plenty of clothes, and to keep the surface as warm as possible. Swcating has been recommended, but I have known persons perspire profusely in the disease without any good being done. Lately, I have treated this disease with creosote; but after repeated trials, I am compelled to say, without success.

EXCESS OF UREA IN THE URINE.

THERE is an affection very similar to diabetes, and which is sometimes mistaken for it; and that is, where the urea is in excess. I do not know that the disease has been noticed by anyone except Dr. PROUT; but I have seen several cases of it, all of which have done well. There is debility, lowness of spirits, pain in the loins, thirst, an excessive quantity of urine, a loss and diminution frequently of sexual power, frequently irritation at the neck of the bladder, a frequent desire to make water. The urine is pale, and also heavy; perhaps the specific gravity is from 1.025 to 1.030; but it is acid, and soon grows alkaliescent. On evaporating the urine, there is no sweet extract; and if you add strong nitric acid to the fluid, you have a precipitation of urea. This state of the urine is frequently seen when the phosphates are in excess. Equal quantities of nitric and muriatic acid must be added to produce crystals. The remedy for this state, as in diabetes, is opium, and also iron. I have seen these cases yield to the exhibition of one or both these remedies. Dr. PROUT has cured many cases which were thought to be diabetes, till he examined the urine, and found no sugar in it. The patient complains of the symptoms I have just narrated; and if you find it to be this disease, it may yield to the remedies I have named. If the patient's health be improved, the disease may cease spontaneously. It is by no means a formidable disease, like the formation of sugar. Just as with respect to the solids, we have an excess of developement, an alteration of natural structure, so the source is observed occasionally in the fluids; the natural constituents become changed in their proportions, that just as in one part of the body we have cartilage, or bone, where it ought not to exist, so in regard to the fluids we find them containing something which ought not to be there; but still something natural to the body, or containing something in excess. Again, as in regard to structure, we sometimes have a new structure altogether, a structure that ought not to be in the body at all, such as melanosis, if you choose to call it structure, and scrofulous disease, which is a foreign substance; so occasionally in the fluids, we find things that ought not to be there at all, of which sugar in the urine is an instance. We have changes in the

fluids analogous to transformations; and we have further changes which are analogous to new formations in the solids.

Before speaking of that disease, in which there is sugar in the urine, which is a new formation altogether, and not found in any part of the body, I ought, for the sake of uniformity and consistency of plan, to have said a word or two upon some other affections, those in which there is merely a transformation, if I may so say—in which things exist in the urine, which are found naturally in the body, although they ought not to be present in the urine. One of these articles is serum; the pressure of which is easily ascertained by the application of heat. It coagulates, as you know albumen does, at 150 degrees, or by adding a small portion of acetic acid, and then prussiate of potash. I spoke of this as sometimes occurring in inflammatory dropsy, sometimes where there is no inflammation to be discovered, and sometimes where there is no disease of the kidney to be ascertained. When serum exists in the urine, the urine may be of its natural quantity, or it may be below it, or it may be in excess. Generally, the urine when made is pale: sometimes when first made it is a little opaque. Febrin sometimes exists in the urine, not as a deposit from the ureters or bladder, but really as a produce of the kidneys, at least it was so in a case which I saw. I have seen only one case, but that I repeatedly examined, and I found it was the fibrin of chyle. There is the fibrin of chyle, as well as the fibrin of the blood; and as it is sometimes found in the urine, we may say that it exists in the urine. The case I saw was very remarkable. The woman was otherwise in very good health, but soon after she made urine, a coagulation took place, and there was a quantity of something exactly like *blanc mange*, as much as a teacup-full. Occasionally it coagulated so much, that she could not make water. I showed the discharge to Dr. PROUT, who examined it, and ascertained that it was chyle. She went on in this way for two or three years, and in the midst of it all, she gave birth to a child; it seemed to make no difference in that way. I have every reason to believe she is now alive. Dr. PROUT has seen six or seven cases since that time. I wished to make observations upon her, and begged her not to take food for twenty four hours, in order that I might see if it would check the formation. There was this change produced, the coagulum approached nearer to blood, it had a fine pink colour, and the more she fasted the more it approached to red—it was more and more converted into blood. There was a very serous fluid around this, which contained a good deal of albumen in solution, and of course there was urine, but the fluid scarcely smelt of it till it was concentrated. One hundred grains, on evaporation, gave only half a grain of urea.

Nothing was done in this case; but Dr. PROUT told me that by giving opium continually, two or three times a day, he had been successful in curing this disease. The quantity of substance was altogether deceptive to the eye, for on evaporating this large coagulum, and examining it, there was very little solid matter, and therefore the

loss to the system was by no means so great as at first sight we must have imagined.

Occasionally fat has been found in the urine. I stated, when speaking of a discharge of fat from the intestines, that in some cases, fat was formed in the urine, and in one case, in a lady, a large quantity of fat was discharged together with the urine.

URINARY SEDIMENTS.

Concretions are of a mixed nature; they may consist merely of the natural constituents of the urine, and therefore be analogous to those diseases of the solids called *transformations*, in which things found naturally in the body are present; or they may be new substances, such as ought not to exist at all in the body, being analogous to *new formations*, or non-analogous changes of structure.

Healthy urine, when it is first made, is acid; it will stain litmus paper; and if the bladder be not very retentive—if persons be not very particular, as is sometimes the case with old gentlemen, their breeches will be stained; you observe they are red from the acid of the urine. Chemists in general say that the urine is acid when it is first made; but Dr. PROUT contends that it is not pure aric acid, but lithate of ammonia that stains litmus paper red. But the urine sometimes contains nitric acid, and you know that if nitric acid be added to lithic acid, erythric acid is produced. It is of a very fine scarlet hue, and does not naturally exist in the urine. If you add to this erythric acid, pure ammonia, you have then another change, a purpurate of ammonia is produced, and if you heat this purpurate with potash, and then again with sulphuric acid, you have purpuric acid formed; so that erythric and purpuric acid do not exist naturally in the urine, but are the result of other changes. Thus you perceive, that if nitric acid be formed by disease in the urinary secretion, it may give rise to the presence of the purpurates; purpuric acid may be formed; and then as there are soda, potash, and ammonia, in the urine, you may have the purpurates of these substances; and if these are added to the lithate of ammonia, then the lithate of ammonia, which may exist in the urine, becomes of a fine pink or red colour, and you have a pink or red sediment, and therefore you see that pink and red sediments are essentially lithate of ammonia, which is formed in excess, so as to be insoluble at a common temperature, and they are deposited in the urine, because they are in excess, or the acid is in excess; they are super-lithates. You know, of course, that the lithate of ammonia, and the other lithates, are white of themselves; but from the presence of the purpurates, they acquire a red or pink colour, and if the yellow matter be absent, as in hectic, then, instead of being red, they become pink. Now, in pyrexia, nitric acid appears to be formed in the urine, and the lithates, particularly the lithate of ammonia, are in excess; and in consequence of the excess of lithic acid, or of lithate of ammonia, and the formation of the purpurates by nitric acid, you have a copious red sediment produced: and though it is ori-

ginally owing to the nitric acid, yet it is some of the lithates, generally the lithate of ammonia, which has been rendered red, by the presence of the purpurates. All this may be produced by the sympathy of the kidney with any other organ that is affected. From mere catarrh you will have this produced, in fever and in inflammation the same occurrence takes place. If there be organic disease, especially of the liver, it has a tendency to produce pink sediment—that is, it causes an absence of the yellow matter, and consequently it is pink. Very trifling things will produce this state in some people. A little pie-crust or pastry in some, may cause a red or yellow sediment. Anxiety or strong exercise will cause it. Hence Dr. PAOUR has called this “The sediment of health,” though it is seen in disease, by which he means, that it occurs from such slight causes, that it is hardly worth while to consider it as an indication of disease. All is not right, but still it will happen every day, and indeed by far the most frequently, when the person is in a state which you cannot denominate indisposition. Generally the redder or pinker the urine is, the more scanty is the quantity.

This sediment does not appear till the urine cools. The temperature of the urine, when in the body, is sufficient to keep these matters suspended, and therefore it is generally made clear, and the sediment does not appear till the urine cools; and then, if the person a short time afterwards make water, the heat of the fresh quantity of urine causes it to be dissolved again; but of course a second cooling occurs. For this reason we observe this sediment far more frequently in cold than in warm and hot weather, though the urine perhaps contains everything necessary for such a deposition, yet it does not produce it; but in cold weather, if it so happen that the urine is not in excess—as it frequently is—if we are not chilled; if we are in a warm room; if we do not diminish the perspiration, the quantity of urine remains as before, and then on making water in a cold room, you are almost sure to have this sediment, although under the same circumstances, in summer, you would not, the external heat being quite sufficient to keep these ingredients in a state of solution.

The sediment when red, runs by gradual approaches through a slight brown, the colour of hazel nuts, to absolute white. There is the greatest variety in the shade of colour; sometimes it is red, sometimes it is reddish, sometimes it is hazel coloured, and so on up to white. When you see red and pink sediment, the urine is more acid in general than in health, and when it approaches more to yellow, it is less acid. It shows that there has been less nitric acid, less of the purpurates have been formed; a less change therefore has passed on the lithate of ammonia by the purpurates, and therefore there is a lighter colour. In those states of the body in which there happens to be nitric acid formed in excess, you have the purpurates, and the purpurates being present, and united with lithates, you have a red or pink colour just as it may be, and therefore you find the urine, in the case of red or pink sediment, acid; but if it so happen that nitric acid is not formed in abundance, then of course the purpurates are not produced in so much abundance, and therefore they cannot

change the naturally white colour of the lithates, to a red or pink hue. Hence, whenever this sediment is red and high-coloured, you generally find the urine very acid, and generally it grows less acid, and even alkaline, in proportion as it is paler. Acid urine is generally high-coloured; but when the sediments are pale, and the urine is not acid, then the urine is pale also. Besides nitric acid, oxalic has been found both in the urine, and to form a sediment; but it is not powdery, but crystallized, and in union with oxalate of lime. Dr. PROUT once saw a powdery sediment, which he calls an amorphous uncrystallized sediment of oxalate of lime, and then it was in union with ammonia. One calculus, we shall see, consists entirely of this oxalate of lime, and the tendency to produce oxalic acid, has sometimes been induced by eating sorrel, which contains it. If the sediments are quite white, they are the phosphates of lime, magnesia, or ammonia. The urine is then not acid, but absolutely alkaline, or it becomes so, soon after it is made. It is certainly rare for the urine to be quite alkaline, but often it is all lent, and emits a strong smell of ammonia, immediately after it is made. Turmeric paper is not so good a test for alkalies, as reddened litmus paper, as the smallest quantity of alkali will restore the purple hue. But the urine differs, in phosphatic deposition, in other respects, from when lithate of ammonia forms the sediment. It is not high-coloured, but pale, and of a faint greenish hue. It is not scanty, but plentiful; and it is soon decomposed, becoming very offensive, and giving off ammonia. Lithate of soda, however, is an exception to this. I had a case in which the urine was white, but it did not depend on the phosphates, and therefore the quality of the urine was like that which is seen when there is no red sediment. The lithate of soda, if not coloured by the purpurates, is perfectly white. The urine, in my case, was scanty; it was acid soon after it was made, and tinged litmus paper red; so that you see it differed in several respects from the phosphates.

One set of sediments consists of lithates in abundance, generally tinged with the purpurates; another set are always white, and they are the phosphates. One set has all the acid properties; the other all the alkaline. You may have, remember, the lithate of ammonia pure and quite white, if no purpurates tinge it.

Now this opposite state of the urine, where the phosphates are deposited—where the urine is abundant and disposed to alkalescency—does not show an inflammatory state. The other secretion of urine shows an inflammatory condition; but this is connected with an irritable state of the system—a state of debility. However, if these states run into each other, you will have persons making alternately one description, and then the other; and you will have persons verging from one to the other, so that there is no certainty. Persons are in a sort of mixed transition state, where matters are much confused. Most probably they begin with acid urine, and the lithic deposits; and yet they are actually passing into the other condition, which is the worst state of the two. The sediments are sometimes seen to be mixed. You have occasionally lithic acid, and the lithates in the

sediment, and the phosphates also at the same time, so that the whole state of the patient may be one of transition. You will sometimes find that these conditions alternate, so that you may be very much puzzled, perhaps, in the treatment of the case.

Where the urine is abundant, pale, green, and alkalescent, and the phosphates are deposited, it is observed also, that urea is in great abundance; but Dr. PROUT considers that it is imperfectly formed—that it is the urea which gives rise to the abundance of ammonia, and the way in which this operates, he conceives to be the following:—In these cases, the urea is secreted in abundance; urea is a compound, and being badly formed, it undergoes some change, and affords ammonia, as there is not a corresponding quantity of phosphoric acid. This ammonia precipitates the urine, and then, by uniting with the phosphate of magnesia, a triple salt is formed, which is called *ammoniaco magnesian phosphate*. This is of course a phosphatic sediment, and you may easily know this triple sediment, by the white glistening particles. You see why the urine, in these cases, is alkalescent; it is because there is such an abundance of imperfect urea, giving rise to so much ammonia. However, though the abundance of ammonia from the diseased urea may be the cause of the deposition of this phosphatic sediment, yet the same effect will be produced from a deficiency of acid in the urine. If there be not sufficient phosphoric and sulphuric acid, the urine will be precipitated, and not only the lime, but the ammonia and magnesia; so that you have *ammoniaco magnesian phosphate*. Sometimes it is said that an excess of lime is the cause of the mischief; that however is rare. Thus the urine may err through an excess of acid, of one kind or other; but generally it is from the presence of nitric acid, or it may err from a deficiency of the acids. The sediments are sometimes mere powders, called amorphous; but sometimes the matters deposited are in a crystallizing state, and in the latter case, they may in the first place be red.

Now these red, granular, crystallizing sediments (to distinguish them from the powdered ones), are spiculated crystal. You may see them in the urine. There will be red crystals, frequently with numerous spiculæ at the bottom of the vessels; some of them by chance may be swimming, and some may be sticking at the sides. These are very nearly pure lithic acid, which is precipitated most probably from the great quantity of nitric acid. Sometimes the lithic acid is absolutely in excess, so that it is not held in solution, and therefore crystals are deposited; but this is not necessarily the case. If you take urine, and add acid to it, the lithic acid will be precipitated, and therefore when you see a red sediment crystallized with spiculæ, you know that it is nearly pure lithic acid; but it may arise either from the lithic acid being too abundant, or from some acid being present in the urine, which causes precipitation. The phosphoric acid will sometimes do this, and sometimes the sulphuric; but frequently it is muriatic acid, and sometimes it is said to be even carbonic acid. It must be a weak acid, or of weak strength to precipitate the lithic acid; because any strong acid will produce decompo-

sition. The urine, when you see this spiculated red sediment, is usually very transparent, and of a fine reddish colour.

If the crystallized sediment be white, it is usually the triple phosphate of magnesia and ammonia—the “ammoniaco magnesian phosphate.” The urine here is just the same as if the sediment had been in powder: it is alkaliescent, abundant, pale, and greenish, and soon becomes ammoniacal, and decomposes. You may have crystals consisting of oxalate of lime, and then the crystals are of a dark green colour, and the urine is found to be acid; but this is rare. The crystallized deposits are said never to be found together; the powdery amorphous concretions sometimes are.

URINARY CALCULI.

Now if these crystals, or the solid amorphous matter, becomes heaped together, we call them concretions. It is merely the same thing on a large scale,—deposit over deposit. You are prepared to understand these concretions, from what I have said about the various sediments, both powdery, amorphous, and crystalline. In the first place we have a concretion of a brownish red, or fawn colour, and consisting entirely of lithic acid. Sometimes they are smooth—sometimes rather knobby. They consist, on making a section, of concentric laminæ. On breaking them, the fracture is imperfectly crystallized, and brownish red, like the rest. Sometimes they are not in laminæ, but in an amorphous, irregular, pale mass. But when they are pale, they are generally mixed with a little phosphate, or even a little oxalate of lime. On applying heat to one of these calculi, it becomes white, and burns away, leaving a minute quantity of white ash, which is generally alkaline. It is quite soluble in potash, and may be precipitated by any acid in the form of a white powder. If you add nitric acid with the heat, you have the calculus dissolved, and on drying, you have a fine carmine colour, which is erythric acid. You know already, that nitric acid added to lithic, produces a deep scarlet colour, and this is the case in these calculi. But this calculus is rarely found pure; it is usually found combined with the lithate of ammonia; and then it is clay-coloured—rather paler than the other. The other characters of smoothness, or knob-biness, &c. &c. it has like the first kind. But the most common calculus of this kind, consists of a combination of the pure acid with the lithate of ammonia. You cannot exactly say what is the precise nature of the calculus, but nine times in ten, it will turn out to be a mixture. If it contain lithate of ammonia, either pure, or in combination, it will decrepitate by heat, and the addition of potash gives off ammonia. It is soluble in the alkaline subcarbonates; whereas, pure lithic acid is not. The lithate of ammoniate occurs generally before puberty, is small, and rather uncommon. The usual thing is to have lithic acid and lithate of ammonia. The lithate of ammonia is often mixed with the oxalate of lime, as well as with lithic acid. The next form of calculus in acid urine is, the oxalate of lime, which is easily known from its rough, hard, and exceeding rugged appear-

ance. It is called the *mulberry* calculus from its irregularity on the surface. Sometimes it is nearly black. If you apply heat to it, a white efflorescence appears on it, and from this circumstance you decompose the acid, and oxalate of lime no longer remains, but pure lime, and it will stain litmus paper—being alkaline. Sometimes it has been found smooth, but then it must be exceedingly small. Generally it is a very formidable looking calculus, and makes one shudder to think of its being in the human bladder. The next, with acid urine, is the *cystic oxide*. It is very rare. It is of a yellowish white, and smooth externally. Internally, it is a confused crystalline, glittering mass. It is small. Heat sends out a peculiar smell, and it is soluble both in alkalis and acids. Next we come to urine deficient in acid, and sometimes bordering very closely on alkalescency. The first are the phosphates, and first of lime. It is of a pale brown, or white colour; it is very smooth and polished; has regular plaits, widely separated; is rare and small; and is thought by Dr. Prout to be formed in the prostate, and not to be a blue urinary calculus. It is not fusible by the blow-pipe; and when dissolved, may be precipitated again. It may be dissolved by muriatic acid. However, we have, unfortunately, a very common form, which you may know in a minute. It is the *triple phosphate*, consisting of lime, ammonia, and magnesia. It is white, has no laminae, and is easily pulverised, or broken. It consists of the same materials as the white sand I mentioned; it glistens, and consists of a number of small, white, sparkling crystals; its surface is uneven, and covered with minute asperities. Heat or potash allows ammonia to escape, and therefore you can say what it is. Intense heat will, at last, melt it; but this is difficult. It is more soluble in acids than the phosphate of lime, and you may precipitate it again in minute shining crystals. In consequence of the ammonia being added, it is called the triple phosphate.

The next is very common, but not so common as the first. It is compounded of the last, and the last but one: it consists of the phosphate of lime, and of the phosphates of magnesia, and ammonia; it easily melts under the blowpipe, and is called the *fusible* calculus. You know it in an instant; it breaks under your fingers like so much chalk. If you rub it on your sleeve, the coat will be immediately dirtied, like it would be from chalk. It is exceedingly white, and very friable. Generally, it is not laminated; but if it be laminated, you generally find the triple phosphates between the laminae, in the form of shining crystals. When it is not laminated at all, but is a mass, like chalk, it sometimes attains a very large size. It is very soluble in the acids, particularly diluted muriatic acid; and it often gives the surgeon a great deal of trouble, breaking under the forceps like so much chalk. You may easily separate the lime from this calculus, by adding oxalate of ammonia; the lime goes to the bottom, and then again the magnesia may be separated by adding pure ammonia. However, we do not have this calculus in a form so simple as this, but very frequently we have what is called an *alternating calculus*; *that* is one consisting of these various substances in different layers.

In by far the majority of instances, you find the layers arranged in this order ; lithic acid, or more properly speaking, a compound of lithic acid and ammonia, oxalate of lime, and then the phosphate externally. The layers may be very various, but generally the nucleus consists of lithic acid or oxalate of lime ; in mulberry calculus, nature at length throws phosphates around it, it becomes white externally, and loses a great portion of its roughness, so that the patient does not suffer nearly so much as before. The external crust generally consists of a friable calculus. Sometimes you have laminæ of all the three ingredients ; but still the external crust generally consists of phosphates. When calculi are thickened in this way, they are often very large. Then again, we have another compound calculus, in which the materials are not in layers, but mixed together. Generally, however, when you see a mass of this kind, it does not consist of a mixture of oxalate of lime, and other things, but of lithate of ammonia, and the phosphates ; and then of course the colours vary with the composition. Accordingly, as lithic acid, or the phosphates predominate, so will the calculus to a clay or white colour, and the proportions are quite indeterminable. A mixed calculus of this description, is generally hard, seldom laminated, and seldom large. There is another calculus consisting of pure *carbonate of lime*. It is very rare and very friable. It has all the characters of chalk, and effervesces with the acids. There is an eleventh calculus, which is so very rare, that it has only been seen once : it is called *xanthic oxide*. The substance of this is very peculiar, and by the addition of nitric acid, it becomes yellow. There are also some concretions of the bladder, which are nothing more than fibrin.

Then, besides these urinary calculi, we have *prostatic calculi*, and these are formed in two situations : first, in the natural cavities of the gland, and then they are of a yellowish brown, more or less round and small. Sometimes, I believe, these come from the kidney. I have passed thousands of them at different times, about the size of pins' heads. I have shown some of them to Dr. PROUT, who says they come from the prostate. But they are sometimes found in an abscess of the prostate, and then they are much larger, and highly polished, and chiefly phosphate of lime ; and Dr. PROUT believes that the phosphate of lime calculus found in the bladder, is really a prostatic calculus.

It appears that there are four elementary kinds of calculi, and four distinct calculus dispositions, to which Dr. PROUT gives the name of *diathesis*. Firstly, there is the diathesis to form lithic acid, and its compound lithate of ammonia, a mixture of the two, and soda. Now this is the commonest calculus we have ; nearly all the calculi taken from children, if they have not been allowed to remain long, consists of lithic acid or its compounds, or a mixture of the two ; and in the majority of calculi taken from people, of whatever age, you find that it forms the nucleus within. Then there is a disposition to produce oxalate of lime, and that appears to be a distinct diathesis. Then there is a disposition to form cystic oxyde ; but this is very rare. Then there is a disposition to form the various phosphates.

This last succeeds to the others; it is usually after the three first diathesis have ceased, that the disposition to form the phosphates comes on. So common is the disposition to produce lithic acid calculus, that it is said to predominate in rather more than one-third of all the calculi that are examined, and it is far the most frequent nucleus of all calculi; at least, two-thirds originate from it in the first instance. Those which are of a deep fawn colour, well laminated, and have quite a crystalline fracture, are merely pure lithic acid; in fact, it is a red crystalline gravel. If, with this diathesis, the calculus is of a pale brown, or clay colour, with an earthy fracture, then it is a compound of lithic acid and ammonia; and generally, there is a little mixture of the phosphates, and even a little oxalate of lime; and the more there is of the phosphates, and the lithate of ammonia, instead of lithic acid, the paler it becomes. The rarest of these calculi is the pure lithate of ammonia. Now, the mulberry calculus is found to constitute rather less than one-seventh of all the calculi which are examined, but it is contained in about one-fourth of all the calculi which occur. The cystic oxyde calculus is so rare, that of 274 calculi which were examined, only one was found to be of this description; and in three collections out of five, none were found. The phosphates constitute about one-fourth of the calculi, and one-half of this one-fourth are the mixed phosphates—that is to say, a mixture of the different phosphates. But this estimate of one-fourth is not very accurate, because it has been taken from the external appearance of the calculi; whereas, if these had all been sawn through, it is most likely that within a number of other ingredients would have appeared. The alternating calculi form a very large proportion. We sometimes see in these alternating calculi, lithic acid and its compounds without; and for a nucleus, perhaps a foreign body. We see alternations of lithic acid within, and its compounds, and a mulberry calculus without; that is very common. We see alternations of lithic acid within, and the phosphates without. We see alternations of the lithic acid calculus within, and the mulberry and the phosphates without. When, however, these alternating calculi are found, the phosphates exist externally; and, therefore, it appears that the disposition to form phosphatic calculi, does not precede the disposition to form lithic acid calculi, or oxalate of lime. It appears, that the disposition to form the phosphates, either takes place originally, or it follows the disposition to form the oxalate of lime, or lithic acid calculus; but it is not succeeded by any other diathesis. This fact was noticed by Sir GILBERT BLANE, in 1811. He states, that lithic acid is generally the nucleus in calculi, and that the other dispositions are merely the result of irritation. I am not aware that this statement of Sir G. BLANE's was attended to for some time, but it has now, by very extensive observations, been proved to be correct. Dr. PROUT says, that he never met with one patient in whom the phosphatic disposition was decidedly followed by any other; it usually occurs when irritation takes place.

Now, the disposition to form lithic acid, evidently appears to re-

side in the kidney; for these calculi are seen in that organ. Indeed, there is no reason whatever for supposing that this description of calculus is formed in the bladder; it appears to be truly a renal calculus. If this diathesis be not very intense, you have merely an amorphous sediment, such as we have at all times; and if it be not very abundant, there is no danger, especially if the sediment does not appear when the urine is first made. If it be so abundant as to be deposited before the urine cools—if it come from the bladder in the form of powder—then, of course, there may be danger; and if it not only occur when the urine is first made, and is warm, but takes place constantly, then I believe the individual is almost sure at least to have gravel or stone; that is to say, he will pass concretion, or have a concretion so large that it will not pass.

With respect to the lithic acid sediment, there is more danger in proportion as it becomes paler. When it is of a bright red colour, there is not much occasion for alarm; but when it is white, there is some degree of danger, because it shows a disposition to deposit the phosphates. I do not say that it *always* shows danger; because, occasionally, when it is white, it is merely lithate of ammonia; and it is white, because it is not tinged with the colouring matter in the way I mentioned before. Very frequently, however, its intensity arises from the phosphates being deposited; and when that is the case, there is considerable danger. Some people pass merely a powdery sediment by a mixture of amorphous and crystallized sediment; others will pass even crystals with very little irritation; but if irritation be produced by the sediment, then there is generally a mixture of amorphous and crystallised sediment; and when the irritation is very great, it is generally because a large quantity is passed in both these forms. Under these circumstances, there is generally more or less pain in the kidney, and irritation about the neck of the bladder; a frequent desire to make water; the urine is acid and scanty, it has a high specific gravity, and there is more or less feverishness. You will find persons complain of these symptoms from time to time, and then they will discharge a large quantity of red or reddish sediment. The urine is very acid, and you should always test it. This state frequently comes on in persons who have a calculus already in the bladder.

But sometimes a calculus is formed, and it may remain in the kidney, and the patient may not even be aware of it. Sometimes it will only cause an aching pain in the loins, and not shorten life. But occasionally, of course, these calculi produce very great mischief; occasionally, they pass from the kidney so large as to give great pain. No doubt, they continually pass in the form of minute concretions, and the patient is not at all aware of it; and they will lodge in the bladder, and there grow to the size they are found. Sometimes, when they pass through the ureter, they are of such size as to give great pain on leaving the kidney. From their attempt to leave the kidney, there is pain in the back, attended with vomiting; perhaps you have a great degree of feverishness; perhaps inflammation may be set up, or it may not; and then, after a time, perhaps sud-

denly, all these symptoms cease; and if the stone be very large, then in a day or two there are signs of calculus in the bladder. The infundibulæ are sometimes filled with these calculi: you will see them sticking there; and sometimes the kidney will become blocked up with them. The pelvis is sometimes filled with them, the infundibulæ become greatly distended, and sometimes the ureter is blocked up with them, so that the pelvis is distended into a mere bag. It is said, that in the COLLEGE OF SURGEONS there is a calculus weighing seven ounces and a half, which was taken from a kidney, and which caused no symptoms during life. This is analogous to what I stated with regard to the gall bladder. These lithic acid calculi are continually found in the kidney, and they are of all sizes. It is probable, that in all instances where they are found in the bladder, they have descended from the kidney.

Lithic acid calculi, using the term generally, sometimes occur in great numbers; no fewer than 2000 have been voided by one individual in the space of two years, and 120 have been known to come away in three days. It gives the least irritation of all others.

Children and dyspeptic persons are most subject to that state of body in which there is disposition to join these calculi: the disposition appears to be less between puberty and forty years of age, than before. There is certainly sometimes an hereditary tendency to it. It is said to have occurred frequently in those who have cutaneous complaints; but cutaneous diseases are so very common, that I do not know whether the number of examples are sufficient to authorise us in supposing that there is any connection between the two. Something appears to depend upon local situation, for some places are remarkable for the abundance of persons with this sort of calculus. There is some connexion, undoubtedly, with a gouty disposition; persons that are disposed to gout, frequently become subject to this sort of calculus and this kind of deposition in the urine. Excess in eating or drinking is always mentioned among the causes, and also indolence.

TREATMENT.

The treatment of the disposition to form this calculus, and this kind of sediment, consists in antiphlogistic measures, because this state of the body is certainly for the most part inflammatory. An individual so circumstanced, should take very little, or no animal food at all. In many cases, the latter restriction may be necessary; at any rate, it should be taken in great moderation; and equal moderation is required in eating altogether. Generally, it is necessary to abstain from wine, spirits, and strong malt liquors; though mild malt liquors may be admissible. It is not merely necessary to abstain from Rhenish or Claret wine, but all strong wines, and everything that is acid. It is likewise necessary that the patient should be moderate in the exercise that he takes; and that he should keep an open state of the bowels.

Colchicum is beneficial, together with mercury, in a moderate quantity, so as not to debilitate the frame, but to keep down as

much as possible an inflammatory condition. Neutral salts will be very proper in connection with colchicum and mercury. Alkalies, particularly magnesia, from its being both an alkali and aperient, are advisable. A saline draught is an excellent mode of giving an alkali, because, although you are giving a neutral salt, yet you are giving a vegetable acid, and that is always decomposed within, so that you have the benefit of the alkali. Sir G. BLANE was the first who pointed out the impropriety of giving saline draughts where an alkali was not required, and the advantage attendant upon their exhibition when it was. Dr. PROUT and others, declare that this is the case; and they frequently give a saline draught for the purpose of administering an alkali. It is judged advisable in these cases, to take care that the water which the patient drinks be not hard—does not contain salts or lime, although water, for the most part, is one of the best beverages which people under these circumstances can take. Neutral salts should be given from time to time, such as tartrate of potash, &c.

Patients in this condition, sometimes find great relief from the abundant discharge of lithic acid. You will sometimes hear patients say that they have discharged a quantity of powder, like fullers' earth. It is certainly true, that in this state a vast secretion of lithic acid, or lithate of ammonia, occasionally takes place in the kidney, and then the irritation is altogether relieved. It comes on in fits just like the gout. Now, some have attempted to bring on a secretion of this earth, by artificial means. Some give turpentine and opium for this purpose, in small doses; and some give onions and leeks, steeped in gin, wild carrot, and other herbs, and some give opium itself. Dr. PROUT says, that he has seen great benefit produced by these substances. Opium possesses the power of increasing the quantity of lithic acid, and therefore it has been employed where a copious discharge of lithic acid was required all at once—a liberation, if I may so say, of the sediment. But a purgative should be given with the opium, because the latter may do harm by confining the bowels, to which they are much disposed, although it may do partial good by exciting a discharge of lithic acid. However, in such a case as this, if the patient be very bad indeed—if he have violent pain in the kidney, great feverishness, pain down the ureter, and about the neck of the bladder—you must treat it as nephritis and cystitis, particularly by cupping him on the loins. You will find it serviceable to put him in a hot bath, to purge him well, and give him colchicum, alkalies, and opium.

In cases, where the disposition is to form oxalate of lime and mulberry calculi, the urine is also acid; a similar state of the system takes place, and a similar mode of treatment is required. The mulberry calculus, like the lithic acid, occurs in both sexes, and at all ages up to fifty. It is most frequently seen about fifty, but it is, I believe, never formed after sixty. The lithic acid calculus and its compounds, occur in very dyspeptic persons, and who are disposed to be feverish and irritable; but the oxalate of lime, and the mulberry calculus, is continually produced in persons who have nothing else

the matter with them; and when it is produced, it may be discharged. The lithic acid calculus and its compounds, have been formed to the amount of 200 in one person; but the oxalate of lime, or mulberry calculus, seldom occurs more than once in a patient's life; or if it does return—if another be produced, it is generally after a very long interval. The urine in this state is pretty good, and remarkably clear. The amorphous sediment of the oxalate of lime is very rare, and the crystallised sparkling sediment of oxalate of lime is still more so. This description of calculus often acquires an immense size in the bladder, and it does not appear to be produced accidentally. The lithic acid, or phosphatic calculus, will be produced accidentally, when there is a clot of blood, or a foreign substance has been introduced into the bladder; but this depends on a peculiar state of the system which is not understood,—a peculiar diathesis which appears unconnected with external circumstances. It sometimes follows, and is sometimes succeeded by, the deposit of a lithic acid calculus, but nothing is more common than to find it alone. Sometimes oxalic ceases to be formed, and lithic acid is produced in abundance, and then the deposition externally is lithate of ammonia. I have myself, known several persons discharge a calculus of this kind. They have been perfectly well, but suddenly have been seized with violent pain in the kidney, which has continued some days, perhaps only some hours, or even minutes; the pain has shot down towards the bladder, and then ceased, and after a few days, in passing their urine, they have been surprised by something making a noise in the *pot de chambre*. Sometimes there has been violent irritation, and all the ordinary symptoms of a stone in the bladder; the stone has escaped, and then they have been perfectly well, and have had no return.

The treatment here, as the urine is acid, is exactly the same as for the lithic acid diathesis. You must use the antiphlogistic plan, whether you can discover an inflammatory state or not. Dr. PROUT suggests the propriety of changing the oxalic acid diathesis, for that of the lithic acid, by exhibiting muriatic acid. If you give acids, lithic acid is produced. As to the cystic oxide diathesis, the calculus itself is very peculiar, and the state of the body in which it is formed, is not known. It is generally supposed to originate in the kidney. The treatment would depend upon the circumstance of the urine being acid or alkaline. Dr. PROUT thinks that, in this diathesis, the prognosis is unfavourable; for in most instances the kidney has been found diseased, and in others, has been an inveterate hereditary tendency to disease of the urinary organs. It appears to be a very exclusive diathesis, for it is found with no other deposition in the urine; there is no other calculus matter for a nucleus, and none on the outside, except the phosphates, which are the effect of irritation, and not of disease. There is a far worse state of the symptoms—that in which the phosphates are deposited, and which has been called the phosphatic or earthy diathesis. Now, here everything is the reverse of what I stated to be the case, where the tendency is to a lithic acid, or oxalate of lime calculus; the urine is not scanty and

high-coloured, but copious and pale; and often it is greenish. On looking at the urine, you may often tell what is the state of the parts, you may say that the individual has a phosphatic calculus in the bladder, or is depositing phosphatic sediment. The urine is of a lower specific gravity than in the cases I have already considered, and lower than it is naturally. The urine very soon purifies in these cases; sometimes you cannot keep it a day before it is quite putrid—smelling strongly of ammonia. Frequently there is an iridescent and white follicle at the top of it, which consists of the phosphates, with, I presume, a little mucus. The sediment may be either pulverulent, or amorphous, being a mixture of the phosphate of lime and triple phosphates; or it is crystallized, and then you have the triple phosphates only—white glistening crystals. You know that the two chief calculi, found in the bladder, are the triple phosphate—the ammoniaco magnesian phosphate, or that and a mixture of the phosphate of lime, and in that case it is white (not at all crystallized), friable, leaving a white mark on anything it is rubbed against, and very fusible. Now these depositions are very rarely original; they generally occur subsequently to the formation of other calculi, usually to the lithic acid, or oxalate of lime diathesis. The red sediment becomes of a fainter red, and from the phosphates being more and more formed, it becomes paler and paler, till it becomes a clay colour, and then at last the phosphates only are formed, the lithic acid, or lithate of ammonia, being no longer deposited. The urine then becomes more abundant, does not show such strong signs of acidity, which gradually disappears, the urine even becoming alkaline after it has been made some time. When it putrefies, (which it does ultimately, soon after being voided), it becomes very alkaline, depositing spiculæ of the phosphates. The two sediments of the phosphates, viz. the crystallized and the uncrystallized, the latter mixed with phosphate of lime, sometimes alternate; the same individual depositing, for perhaps some days, the glittering crystals, then those which do not glisten, and perhaps even the lithic acid, alternately with the latter; but the acid is then very pale, and before it gives way to the phosphates, it sometimes alternates with them.

If there be a great deal of crystallized phosphate, the urine is very alkaline, the urea is very copious, and crystals are sometimes formed in the bladder. Generally this takes place after the urine is voided; but in bad cases, you will see the crystals subside instantly, to the bottom of the vessel. In the phosphatic sediment, in which there is a mixture of the triple phosphates, and the phosphate of lime, all the symptoms, though similar, are far worse. In this diathesis, there is no inflammation, but a morbid irritability. There is a bad distressed expression of countenance, showing there is something wrong in the system. The patient is generally sallow, languid, and has pain in the loins, with more or less dyspepsia, and abdominal derangement; often there is a want of sexual power and desire, and then it is always right to examine the urine: often you will find diabetes; often too an excess of urea, and in others, this joined with a

deposition of the triple phosphates : of course the urine will vary on different days, and at different times of the same day, being at times copious, and at others less so. Many cases arise from injury of the loins, and many from the depressing passions—from anything that exhausts the vital powers. Sometimes it arises from masturbation, or from excessive venery. Any local irritation will produce it, whether in the bladder or urethra, and therefore this diathesis is rarely found in the kidneys themselves. When a lithic acid calculus descends to the bladder, it produces irritation, and then the phosphates follow. The bladder is often diseased, from various causes, and frequently it is inflamed, so that these calculi appear to be formed in the bladder, far more frequently than anywhere else. They have been formed from an irritation in the urethra, reaching to the bladder ; but generally they arise from an irritation of the bladder itself. This deposition instantly occurs after injury to the spine, or in disease of the spine, and we generally expect to find it. Stricture of the urethra induces it, not only by irritating the bladder, but by affecting the kidney, and causing it to give origin to urine, imperfectly acidified, and then the phosphates are usually deposited from the decomposition of the urea, and the production of other things.

TREATMENT.

In these cases you must not bleed and starve the patient, but give him meat if he can bear it, and even allow malt liquors. Although perhaps urine in general may be too irritating, acescent wines are good if they do not disagree with the stomach and intestines. Acids themselves are proper, especially the citric and muriatic. Mercury acts as a poison. By giving it nine times out of ten, the patient's pulse becomes irritable, and all the urinary symptoms aggravated. Opium is required freely to lessen irritation. The sulphate of quinine, or a decoction of bark, is occasionally very advantageous, and iron also ; but sometimes this is too stimulating. You must act with regard to individual cases, as well as on general principles. Salines of all kinds are bad, producing great irritation, such as cannot be borne. It is best to give such aperients as confection, senna, and castor oil, in moderate doses, so as not to irritate, but merely to prevent an accumulation in the intestines. Five drops of the muriatic acid will produce an action on the urine ; but sometimes ten or twenty drops may be required. Opium here is the great remedy, instead of bleeding and mercury. The state of the urine will readily determine the proper treatment. It is always right to employ stained litmus paper, for as the urine becomes alkaliescent, it will restore the original colour, and it is a far more delicate test than turmeric paper. Whether there are signs of a calculus in the kidney or not, or in the bladder or not ; whether there are any of the sediments which I have now mentioned or not ; whether the patient is going to be lithotomized, or has been, the urine should always be carefully examined ; for you have to treat the case under all these circumstances. After lithotomy, you have still to remedy the condition of the system,

which gave rise to the calculus, because that does not cease on the extraction of the stone. You should examine the urine which is made first in the morning, because that is most likely to show the actual state of the system. It should be put away for twenty-four hours, in order that you may make a perfect examination. Often you may ascertain the point immediately, but the urine should be allowed to remain and cool, and the sediment, if there be any, will then be deposited. This sort of treatment is continually required after lithotomy and lithotripsy, and from the want of not making careful distinction, from the habit of giving alkalies, when there is anything the matter with the urinary organs, infinite mischief is done. Such mistakes, till very lately, were made every day, almost every hour, in the treatment of these cases.

LITHIASIS—SYMPTOMS.

Supposing that there is a stone in the bladder, the symptoms produced are, usually a pain at the end of the penis, a benumbing pain, which is increased upon exertion. This pain makes the patient pinch the penis as hard as he can, and if he feel a sudden call to make water, he usually puts his hand to the end of the penis; and children are in the habit of pulling the prepuce. There is a frequent desire to make water, and the stream suddenly stops; the desire, however, to make water being still urgent. Sometimes a change of posture will cause the urine to flow again. Sometimes the urine, instead of suddenly stopping, will come away drop by drop, the discharge being attended with great pain, and perhaps with blood. There is pain in the bladder itself, especially on motion, and pain also on evacuating the intestines—and tenesmus. If the calculus be large or very rough, there is pain in the neck of the bladder, pain and numbness of the testis of the same side, pain of the inner part of the thigh along the course of the anterior crural nerve, and sometimes down even to the sole of the foot; and all these symptoms are made worse by exercise. Now, almost all these symptoms may occur, when there is no stone whatever. I have had them two or three times from mere inflammation, about the neck of the bladder. The sudden stoppage of the stream is the sign most to be depended upon. Disease of the prostate, and inflammation at the neck of the bladder, will cause many of the other symptoms. Dr. HEBERDEN says, that the pain on voiding the urine, is felt *after* making water, in the case of stone in the bladder; and worse *before* passing it, in the case of diseased prostate: and that in the latter case, it is not increased on motion; and I believe this is a general fact. The obvious reason why the pain is increased on motion in lithiasis is this: the stone is moveable, and therefore it may come forcibly in contact with different parts of the organ by motion, whereas the prostate is fixed. However, the prostate is rarely diseased, except in old men. Dr. HEBERDEN says, that even pain and swelling of the testis, are observed sometimes in diseases of the prostate. But you may always ascertain whether the prostate is diseased, by passing your

finger up the rectum, and observing whether it is enlarged; and the certain way of ascertaining whether there is lithiasis, is, of course, to sound the patient. There is frequently in the latter case, a large quantity of ropy mucus secreted, which you may draw out to a considerable length, and which subsides in the pot to the bottom, in the form of a white tenacious mass.

Occasionally a small fragment of a calculus comes away, and when all the symptoms have become violent, whatever was the diathesis before, it now becomes phosphatic; the urine becomes pale and copious; it loses its acidity, and has great alkalescency; and if there be any deposition at all, it consists of the phosphates. The agony now becomes constant; the patient becomes emaciated, and death ensues. The phosphatic diathesis and the sufferings are proportionate. The bladder, after death, is found to be diseased; the mucous membrane becomes diseased, the muscular fibres enlarged, and perhaps the kidneys themselves diseased. This state may generally be prevented, by the removal of the stone, by surgical operation; and sometimes it fortunately ceases through a sac being formed in the bladder. The muscular fibres give way, and the inner coat protrudes between them: not that the muscular fibres rupture, but the inner coats gets between the bundle of fibres, and you see externally a small protuberance on one part of the bladder, consisting simply of mucous membrane internally, and peritoneum externally. Sometimes, if the calculus be rough, the symptoms diminish by the deposition of the phosphates. Although the phosphates are in general produced by irritation, yet they fill up the interstices between the roughness of the calculus, and so render it smoother than it was before, and thus the symptoms are sometimes alleviated. However, though a stone may give rise to all these symptoms, yet it does not necessarily produce them. If the calculus consist of lithic acid, it may be small and quite smooth, and then it may give very little trouble; indeed, such a calculus has been found after death, when its presence was not at all suspected. The health is sometimes very good in such cases, and if the health be fair, and the patient does nothing calculated to injure him, a calculus of that kind may not increase. When a person, by sounding, is known to have a calculus in the bladder, yet it may go on for many years without any increase, provided he does nothing unfavourable. Dr. PROUT knew a case in which the presence of a stone in the bladder, was ascertained by sounding, and five or six years afterwards, at the time he mentioned it to me, the patient experienced little or no trouble from it, and frequently, for weeks together, he forgot that he had anything the matter with him. But the case had been well managed, and the patient had been put on a moderate antiphlogistic regimen. Dr. PROUT also knew a case where four renal calculi existed in the bladder five months, without producing any severe symptoms, and then a little irritation occurred at the neck of the bladder, which led to their removal, and yet one of them was nearly an inch long. These, however, were lithic acid calculi. The oxalate of lime calculus causes extreme suffering, if it be of any size, and so also does the

phosphatic, and an operation is indispensable, (no regimen here will answer the purpose), provided things have not gone so far, that a surgeon would not listen to the operation. In the case of the male, calculi of considerable size are discharged sometimes, and instruments have been formed to dilate the urethra, so as to bring them away without any incision; but these have been lithic acid calculi. But nature very frequently discharges them herself. However, these occurrences take place far more frequently in the female, of course, than in the male, and much larger calculi have been brought away, both by nature and by artificial dilatation. One has been discharged weighing as much as twelve ounces, in a female. These are very extreme cases. It is very common for females to pass calculi by an effort of nature, on account of the shortness of the urethra, and it does not appear that females are by any means subject to the complaint as males. When the suffering has been very great, and an operation has at last been performed, it is generally found that the calculus externally is of a phosphatic kind; but an entire phosphatic calculus is rarely seen. In this state, when the phosphatic diathesis exists, the kidney is at first affected only functionally, it secretes morbid urine, through an irritation of the urinary organs, with an excess of urea, with a tendency to a phosphatic disposition; but at last actual structural disease of the kidney takes place. If the kidney could be preserved in a state of functional health—if it could be made to secrete proper urine, although a stone exists in the bladder, yet it is probable that it would not increase, even around an accidental nucleus; but the accidental nucleus produces irritation; that irritation is communicated to the kidney—the kidney secretes morbid urine—from the morbid urine, deposition takes place, and so the calculus increases. Frequently the origin of the disease does not depend upon any external circumstance, but there is a real disposition to these morbid deposits, which gives rise to it, and it goes on increasing, till a calculus is formed; but if by chance *anything* gets into the bladder, so as to form a nucleus, this, by inducing irritation, will cause an increase of it. If by art we could keep the urine healthy, it is supposed that a calculus would not be formed—that the nucleus would not serve for anything to collect around.

It does not appear that a calculus goes on regularly increasing; the urine is not always equally morbid, and external circumstances are not always equally unfavourable. The patient neglects himself from time to time, or some unfortunate occurrence takes place; in short, the urine is not always equally morbid, and therefore the calculus does not go on increasing regularly at the same rate. Sometimes a calculus has been known to increase very much, and the urine has become more and more morbid, and then the process has been exceedingly slow again. And there is another reason why this deposition is not constant: many calculi have a laminated structure, and between the laminae, they seem to have suffered some diminution, as if a space had been made by water washing around them. The occurrence, indeed, of separate laminae, is thought to prove that circumstance. Now, the patient's being below puberty, is a great rea-

son why the calculus should be removed, even though the urine has no phosphatic sediment; but deposits lithic acid, and lithate of ammonia. There are, below puberty, five thousand chances to one that the calculus will increase, therefore it is best, generally, to extract it; even if the patient suffer but little pain. Lithotomy, too, is less dangerous in children than in adults; at Norwich it is four times less so. Generally speaking, the mortality from lithotomy is one in seven and three quarters; but in Norwich it is less than anywhere else. Dr. MARCET found it one in eleven and three quarters;—before puberty, one in eighteen; after, one in four and three quarters. Nearly one half of the cases occur before puberty, and then the number increases up to forty years of age; and but one female is affected for twenty-three males. Some think this is owing to the quiet occupations of females; others refer it to the shortness of their urethra. This certainly must have great influence, but in all probability there is much less disposition in them to the disease.

CYSTITIS.

Inflammation of the bladder is characterized by a burning and throbbing pain in the hypogastrium; tenderness on pressure; a constant desire to make water; a most horrid pain at the neck of the bladder while the urine is passing, so that perhaps the patient can only void it on his knees. The urine is made in very small quantity, very often, and is frequently high-coloured and bloody. Perhaps, also, there is great tenesmus. This affection is induced by boils, turpentine, cantharides, and other things which irritate the urinary organs. Gonorrhoea, from the inflammation spreading to the bladder is a frequent cause. The *treatment* is, of course, simple enough, but it requires to be put into practice rigorously.

The bladder, however, is subject to chronic inflammation, and also to a discharge of ropy mucus, as in calculus, attended with much suffering. The mucous membrane also becomes hypertrophied. As much as several pints of this ropy mucus have been discharged in one day, but it is very common for a pint to be discharged. It subsides to the bottom of the vessel and is quite white. It sometimes blocks up the urethra so that a little difficulty is experienced from time to time in making water, and at last it is very purulent. After death there is frequently a thickening of the mucous membrane; the muscular fibres are seen distinctly, and in some parts of the bladder are very much developed. Indeed it would seem that those muscular fibres described by Sir Charles Bell, which run from the extremities of the ureters become hypertrophied, and the mucous membrane suffers, so that at the opening of the bladder you see a triangle running from the mouth of one ureter to the other. You sometimes may pass four fingers down half an inch, so great is the development.

The treatment of this kind of case must be antiphlogistic, so far as the patient's strength will allow of it. The application of leeches is proper; and if there be no excessive irritation but more discharge

than anything else, turpentine has been occasionally used in a small quantity and uva ursi: you may put an ounce of the latter to a pint and a half of water, and boil it down to a pint. Cubebs have been likewise occasionally serviceable. These cases, however, taken altogether, are very bad, and in a large number of instances a stone exists in the bladder, or there is a stricture which gives rise to this irritation to hypertrophy or diseased prostate. If the urine be alkaliescent it may be well to give acids and narcotics, in order to lessen the irritation, and for this purpose you may give conium, opium, and hyoscyamus. But when the mucous membrane becomes hypertrophied, and there is secretion to such an amount as this, you can do little more than afford temporary relief. So great is the disposition to hypertrophy of the muscles of this part, that it is said, that no other muscles of the body are so increased by exercise as the muscular portion of the bladder; that is to say, if any difficulty exist in the passage of the urine, or there be any irritation about this part so as to make the bladder contract frequently, no other muscles grow so much. Indeed in some cases the inner part of the bladder looks like the inner part of the heart; the muscular fibres and the mucous membrane are so developed that you would think at first sight, it was the right ventricle of the heart.

GENERAL MORBID ANATOMY OF THE BLADDER.—HYPERTROPHY.

THE mucous membrane is often softened when it is hypertrophied and when it is not. Sometimes the villi and follicles are so apparent that you perceive them instantly, naturally they are so minute that you cannot see them. The cellular membrane is frequently hypertrophied, so that the bladder will become hard, and if a sound be passed into it the hardness is discovered. The mucous membrane is sometimes enlarged so that you have the appearance of a polypus. Sometimes *fungous excrescences* of a canceroid or encephaloid nature occur. I mentioned a case of this kind formerly where encephaloid deposit gave rise to hæmorrhage which destroyed the patient.

Scirrhus tumours are found in the bladder which are sometimes original and sometimes connected with disease of other parts with a diseased rectum or uterus. A *cyst* has sometimes been found in the organ, and it is almost always connected with its internal surface, and in this case it is most probably a mere sacculus. A *sacculus*, however, may be formed originally. The bladder has sometimes been divided into two chambers by adhesions across; or a *sacculus* may become so very large as to be of the same size as the bladder itself. The bladder is continually subject to palsy. When a person labours under paraplegia, he is generally unable to retain his urine. At first he is unable to make water, so that it continually requires to be drawn off, (this you see in paraplegia from accidents) and then, after a time, the detrusor urinæ and sphincter lose their power, and the patient cannot retain his urine. But these parts are much diseased in old men, just as the uterus and ovaria are disposed to become diseased in old women. When the prostate and the parts of generation have done

their duty they fall into a diseased condition, and the bladder among the rest; so that old men are continually unable to sit like young ones. But sometimes this will occur from accidental circumstances. I have known paralysis of the bladder occur from an opiate injection; from having a suppository or an injection of opium, the bladder has become paralysed so that it has been necessary to draw the water off, and it has occasioned much alarm. On a repetition of the injection, the bladder has become so torpid that retention of the urine has actually occurred. Sometimes it is produced by a torpid state of the system where the head is oppressed; it occurs frequently in fever, and sometimes, without any obvious reason, the bladder loses its power.

TREATMENT.

If there be no disease of the spine, no organic disease of the organ, no inflammation, nothing more than the simple fact itself, without your being able to trace it to anything more than torpidity, then cantharides is one of the best remedies, and perhaps electricity, anything that is stimulating.

STILLICIDIUM URINÆ.

The bladder may be in this state while the urine is dribbling away, for when it is distended to a certain amount the urine will pass involuntarily, the patient will say he cannot hold his urine, when in fact his bladder is full, and can hold no more. You must, therefore, ascertain the condition of the bladder. Very often it happens that this form of paralysis occurs temporarily. If a person do not make water in proper time, he loses the power of voiding it, and distension is no longer felt: the muscles have no longer power to empty the bladder, and it remains greatly distended, although the urine is constantly coming away. Therefore examine into the real state of the case.

DISEASE OF THE PROSTATE.

This gland is frequently enlarged, particularly in old men. From the pressure, there is frequently great difficulty in making water, and sometimes the gland becomes so large as to cause difficulty in going to stool. There is pain there, and the abdomen at last becomes diseased, and death is frequently the consequence. The prostate will, on examination, be found full of large cells, and much hardened and enlarged. This enlargement may be felt during life by introducing the fingers into the rectum. Calculi frequently comes from the prostate, and they sometimes exist in large numbers in the cells. Sometimes they will grate against a sound when being passed into the bladder. They are generally exceedingly small; and always, I believe, found to consist of the phosphate of lime.

Now, to treat diseased prostate, the chief thing is to draw the water off regularly. To allay pain, however, you must sometimes

employ narcotics ; and I think it would be worth while to give iodine a fair trial, by the internal and external exhibition of iodine and the hydriodate of potash. Such cases usually come under the surgeon's care, so that I have only been able to try this treatment in a few instances, but I have derived temporary benefit from it, and if anything is likely to relieve in these cases it is iodine.

GOUT.—ARTHRITIS.

I come to a disease very much connected with urinary affections, I mean gout ; for I am never surprised when gouty patients have stone. They frequently go together, though gout in the first instance affects the joints. In French it is called *goutte*, in Latin *gutta*, because it was thought to arise from a deposition of some morbid drops in the joints. It is called *podagra*, when in the feet ; *chiragra*, when in the hands ; and *gonagra*, when in the knees ; but these are all included under *arthritis*.

Although *arthritis* means inflammation of a joint from any cause, yet it is now appropriated solely to gout. This affection usually makes its first attack, just like asthma and some other diseases, at about two or three o'clock in the morning. Usually it first attacks the ball of the great toe. The patient wakes in the most excruciating pain ; he then becomes feverish, and continues so till the next midnight when the pain remits, and the next morning he finds his toe swollen and reddish : and this kind of attack is repeated for several days and nights. The disease then frequently declines, the patient perspires freely, and the part itself loses its cuticle : the cuticle *dequamates* (which is not the case in most diseases), and there is violent itching for some days. After some time the same thing occurs again : perhaps attacking both toes, perhaps, first one and then the other, or perhaps seizing the hands, knees, or wrists, and it will, perhaps, in the same attack, run about amongst these joints, being seated in first one, and then another. The more frequently it comes, the greater the chance of it attacking the larger joints, perhaps even the elbow or shoulder. But it begins in the smaller joints, and continues in them to the last, affecting the others only occasionally. Generally, the intervals of the attacks are shorter, and the duration of the attacks themselves become longer, as the disease advances.

The joints at last may become stiff, rigid, and deposits take place under the skin, so that the joints look larger and harder than natural. Occasionally, a solid deposition of white stuff occurs, and sometimes it is fluid, and you can, with a needle, let it out, looking like soft mortar. Often there is an inflammatory attack of the kidney, and a deposition of lithic acid, or of some compound of it. This may occur during or between the fits of gout, but they are often closely connected. Now, after a fit of gout, the general health is often better than before. Before the attack, there is often general indisposition—some disorder of the digestive organs, or languor, loss of spirits, or perhaps pain of the head, sometimes palpitations ; in fact there may be functional derangement of every part of the body. Now if these

symptoms continue for any time, so that the patient becomes ill, it is called atonic gout, that is, gout without power to bring it to a regular fit. Sometimes when a regular fit has come on in a satisfactory manner, you will find it suddenly cease,—not retire to any joint, and then the patient will have some violent internal affection—perhaps apoplexy, perhaps violent vomiting, gastrodynia, or perhaps violent colic, and this is called *retrocedent* gout. When the internal affection is inflammatory, it is called *misplaced* gout. But very often the first class of symptoms arise from an inflammatory action, for the old writers often called inflammatory processes nervous, or something else. Now, sometimes gout will cure many extraordinary symptoms. I knew a gentleman cured by it of a violent and long standing gastrodynia. He had had the gastrodynia indeed for years. Palpitation is often cured by it. Strangury, cystorrhœa, piles, and almost every disease you can mention—has ceased on the appearance of gout, and sometimes they alternate with gout; and if such affections be very violent, indeed they may be called misplaced gout, for they have come when it should have appeared.

The disease at first most frequently commences about the end of January or beginning of February. There is a universal rule. It occurs in males much more frequent than in females. It occurs too, it is said, in robust males far more frequently than in weak ones. It never has been known in a eunuch. If such were the case, gouty old gentlemen have an easy remedy. It is one of the great hereditary affections. If it occur in females, it is generally in masculine females—robust hearty looking women. It occurs in men, particularly who have circular chests, short necks, and broad heads; not those who have large foreheads. It occurs chiefly in those who eat a great quantity of flesh meat, and drink a good quantity of wine. Among those who are predisposed to it, it seldom occurs before thirty-five years of age. I have seen it in persons below puberty, and it is said to have occurred in infants.

THE pain in gout is not only very severe, but of a very peculiar kind; so that SYDENHAM, in writing of his own sufferings, compares it to the gnawing of a dog; and patients who have suffered from it exceedingly, say they can distinguish between the pain of gout, and that of rheumatism. Occasionally you will see gout in persons who are extremely thin, spare, and emaciated. The disease, though generally connected with a certain developement or form of the body, yet certainly does arise, in many instances, independently of any external appearances whatever. Sometimes very delicate women are subject to it, persons whom you would imagine the least likely in the world. In these cases, there is usually a strong hereditary predisposition; but when there is such a predisposition, it matters not whether it is hereditary. You will meet with cases, not only where the external appearances are such as would lead you to suppose that the person would suffer the disease, but it will occur in the most temperate individuals. The disposition to it may be exceedingly strong,

and persons may become the victims of it, independent of the external appearance of the body, and independent of any of those excesses which so frequently produce it. The disease generally begins in one great toe; that on the second attack, it perhaps occurs in both, and so it spreads to the other joints, till at last, after several paroxysms, many joints will be affected. And the disease also becomes more frequent, so that persons first perhaps have a paroxysm every year or two, and then every year; then two or three paroxysms in a year, till at last they have it on the least exciting cause. I know an instance of an individual who, when about thirty-five, had an attack of the gout, and though he is now upwards of seventy, he has never had an attack since, without having done anything particularly to avoid it. These are exceptions to general rules. As gout attacks the rich more than the poor, it was altogether a fashionable complaint; it was thought a creditable disease; and at one time everybody longed for it, or declared that they had had it.

The disease I mentioned, is particularly favoured by excess in wine. All fermented liquors do not appear to give the same tendency to it; and as to spirits, I am inclined to believe that they have a tendency to *prevent* the disease; at least I hardly know an instance of a person, who has committed a great excess in spirits, labouring under the disease, although wine drinkers have it every day. It is a very rare complaint among the poor; now and then you will see it among them, from a peculiar predisposition, or from its being hereditary, and then it will occur in spite of the absence of all the ordinary causes. I have seen persons who, from their make of body, from the occurrence of the disease in their progenitors—many members of the family having had it—were the most likely persons in the world to experience it; but, from indulging in spirits to a great excess, have not suffered from it, although before hand one would have said that they were most likely to have it by the time they were forty or fifty. When a person is liable to gout, a paroxysm may be induced by the very slightest cause. If he indulges in eating and drinking too much on any particular occasion, a fit of the gout is very likely to be the consequence; it will occasionally occur from mental anxiety. An exposure to cold, which in another individual would induce an inflammatory complaint, will, in those predisposed to gout, produce a paroxysm. Even accidents, a sprain of a joint, will become local causes, and the patient will have an attack of the gout in that particular part. When persons have the disease for a length of time, it is very common for internal organs to become seriously diseased. Persons who have been the victims of gout, frequently become asthmatic, have disease of the kidneys, organic diseases of the stomach and intestines, chronic bronchitis; very frequently disease of the heart supervenes, and disease of the head occurs, so that they die apoplectic. The gout is not confined at last to the extremities; neither are the internal symptoms merely functional, but the organs in the three great cavities of the body become diseased.

The prognosis must depend on the degree of the original disposi-

tion on the part of the patient to the disease ; and it must depend, of course, in a great measure, also upon the resolution which he has to follow up our advice. A great number of persons who have the gout are very disobedient in this particular.

TREATMENT.

In general, it is necessary that the patient should be very abstemious—live as low as he can, to be in good health, and take as much exercise as he can bear, taking care that his health is not impaired by its violence. It is impossible to lay down any specific rule; and to say that a man disposed to gout should not drink wine, should not drink beer, should not eat meat, would be wrong. There are some gouty patients who would be better if they cut off fermented liquors; others would be better if they went farther, and ate no meat, but confined themselves to vegetable diet and milk. There are other cases again where this would be absurd; the patient could not live without meat; and there are other cases where it is necessary to allow a certain quantity of wine. The rule should be, to let patients live as low as they can to be in good health, and that must vary in different individuals. The stomach of many persons labouring under gout is so weak, that they cannot digest their food without a certain allowance of wine; but, generally speaking, the diet I have recommended, and as much pleasant exercise as possible, without weakening the patient, is advisable. There should, however, no doubt, be extreme temperance; the patient should not take more wine, or eat more meat, than is necessary. No doubt, many persons will thus get rid of the gout altogether with the most perfect ease; and, no doubt, others who will not get rid of it (and these are by far the larger number), will have it very much mitigated. They must be particular in their food, that if they eat any food they should take that which is the most digestible, such as fresh mutton, fresh beef without any sauce. They should take simply sherry, or madeira, not mixed wines; and above all, they should not take acescent wines, nor take champagne, and perhaps they had better take brandy and water. Many persons cannot take Rhenish wines, or Claret, or Champagne, without having a fit of the gout directly. Generally, Sherry agrees best, and therefore you should recommend it, unless the person knows that some other wine is better for his constitution, or weak brandy and water. I am supposing that the stomach of the patient requires that such a plan should be adopted. It would be well for many persons who are lame in the feet, to be rubbed down once or twice a day, like a horse; it would be very beneficial in a great number of cases, and they would find it to be a very great luxury. In a regular fit of the gout, the best thing that can be given, is colchicum. The wine—mixed with some other purgative because you want it to act speedily—should be given in half-drachm doses every six hours. The sulphate of magnesia is a good combination. You may produce purging in twenty-four hours, or sooner; and when that takes place, the patient is generally relieved at once. Any active

purgatives will do good, but colchicum appears to be the best : unless it purges, however, it will seldom have any influence. Now and then the symptoms will all cease after two or three doses, but most commonly this does not occur till purging takes place. It is better to quicken the purgative effect, in order to prevent griping, and the sulphate of magnesia will excite its action so much the sooner. Venesection, in young persons, may be advisable, but generally it is out of the question. Leeches, applied to the part, are frequently productive of very great alleviation ; and it is a great comfort, generally, to apply a tepid evaporating lotion. A tepid spirituous lotion, so as not to chill, is generally serviceable. When these things are being employed, the diet should be scanty. When the paroxysm is over (and it need never last long if you treat it in this way), friction of the parts is always found useful, rubbing them with a flesh-brush or the hand, and some salt and water, and similar stimulants. Sometimes it is necessary to give wine or mild tonics, to relieve the languor that is left ; but it is by no means *always* necessary. Occasionally, from the great severity of the pain, opiates may be required ; but it is necessary to use anti-phlogistic measures. If all this be done, and the patient's life continued, the disease becomes comparatively trifling ; I say *comparatively* because it is always painful ; but it is nothing like so painful as it would be, if they wrapped up their limbs in flannel, took no colchicum, and in the intervals of the disease, indulged in every absurd way they could.

It is dangerous to apply cold to the parts during gout ; some have done it ; and HARVEY was accustomed, when an attack came, to plunge his feet into a pail of cold water. I know persons that do this, but no medical man is justified in recommending it, for it has frequently happened that some disease has suddenly begun within ; there has been apoplexy produced, or violent gastrodynia, or an affection of the heart, and the patient has died very shortly. It is not easy to eradicate this disease, but by the employment of colchicum, the disease is rendered much less violent than it was a few years ago. Formerly, colchicum was employed with great success, and then it was entirely forgotten till within a very few years ago. When I was a student, no one thought of exhibiting colchicum in any form ; it was only spoken of as a thing once used as an uncertain diuretic, and a violent purgative ; and it was thought it would be better if it were expunged from the *Materia Medica*. I spoke of the wine of colchicum, but the powder and other preparations are very good. I have used the wine, and it has answered very well. Some give the powder in doses of five grains every four or six hours, and some give the acetum. It generally, certainly, does no good till it purges, but sometimes the opposite is the case.

RHEUMATISM.

This word comes from the Greek *ρευματιζω*, and both in its derivation and real nature, much resembles gout. Indeed, they were

not distinguished till 1662, both having been called arthritis. BEL-LONIUS, a physician, who suffered much from rheumatism, is said to have first made an accurate distinction. Now, rheumatism may be active or passive, and these require a very opposite treatment. In the active or acute form, there is heat and pain, and usually swelling of the joints,—not as in gout of the smaller joints, but of the wrists, elbows, hips, &c. &c. The pain is severe, but not of the violent, horrid kind, like a dog knawing the joint, experienced in gout. The joints are red and inflamed, and often when the inflammation has been seated in the theca of the tendons, I have seen red streaks running along their course. There is generally swelling and puffiness of the parts. Usually, too, you have feverishness, pyrexia, and a quick pulse, the pulse is soft and full; the tongue is generally very white, not hard and dry; and the urine is high-coloured, depositing a lateritious sediment.

Now this disease does not begin, like gout, in the night particularly, but at any time. It is not confined to one joint, but will attack several, either simultaneously, or in turns, shifting quickly from one to another in the most singular manner. Any increased temperature generally makes the patient worse; there is usually, too, profuse sweating, and the sweats are often very sour to the smell. When the disease declines, the parts do not, as in gout, itch, and desquamate, but merely cease to pain, swell, and so on. But these symptoms are seen also in the chronic form, when the affection has lasted a twelvemonth, you will find the parts still hot, swollen, and painful, and the pain is still increased by heat—in fact the symptoms, except the sweating, which does not generally continue, are the same as in the acute form, only less violent. Sometimes a little trouble is required to make an accurate diagnosis, and you will often find the presence or absence of the sweating of much use. But the joints, though the usual, are not the only seats of the disease. It occurs in the back, and is then termed *lumbago*. Often you see it in the neck, when it is called a *crick in the neck*. It may affect every part of the body where there is fibrous membrane, aponeuroses, ligaments, tendons, or perhaps muscles. There is no danger whatever from this disease, unless the membranes within the chest are inflamed, that is to say, the pleura and pericardium. They are sometimes attacked during the disease, but when it has suddenly ceased, or has gone off gradually, inflammation sometimes occurs. This translation will occur in every possible set of circumstances, but perhaps most frequently in young adults, so that you should, in acute rheumatism, regularly examine the chest, just as you would in constipation of the bowels, inquire if there were hernia. Now and then inflammation occurs within the head, but this is rare, whereas pericarditis and pleuritis, particularly the former, are very common.

The active form, then, may be acute or chronic; the chronic form may have active symptoms, but very often it has not; the parts are not hotter than natural, but on the contrary are relieved by heat. This is sometimes the case in the acute form, that is to say, that no

heat exists, but the parts are relieved by heat. It is usually, however, in the chronic form that the parts fall into this state of atony. Sometimes the disease seems to consist of little more than violent pain. It seems to be seated in the muscles, but is really in the aponeuroses over the muscles. This pain is increased by motion, but not by pressure, and there is no swelling. This state is called *rheumatologia*. Sometimes, however, rheumatism really affects the muscular fibres, and sometimes the nerves or their covering, so that it will distinctly run down the sciatic, though it is most seen in the nerves of the face. I mentioned, when speaking of tic-douloureux, that sometimes, besides the genuine form of the disease, you have another affection, called *neuralgia*, which is easily cured. Sometimes, particularly in the head, this nervous rheumatism is intermittent, and it is often intermittent also, when attacking the aponeuroses. This too occurs most in the head. In this case it usually attacks one half of the organ, the pain generally coming on about six in the evening, and continuing very violent for some hours. Occasionally, the parts throb, are hot and swollen, and the eyes water; but at other times, the patient is all the better for wrapping up his head in flannel. Occasionally the parts, when affected with the disease, become thickened; and the patient becomes crippled in his joints as in gout. When rheumatism affects the small joints like gout, it is termed *rheumatic gout*; not that it is a combination of the two, though it sometimes may be. You may have the same appearances both from gout and rheumatism. There is, I believe, only one exciting cause of the disease—I never saw any other—and that is the application of cold, or cold and wet, more especially if the patient be fatigued. I mentioned before, when speaking of inflammation generally, that rheumatism does not terminate in suppuration, and if suppuration occur, it must arise from another inflammation being accidentally present, or excited by it. Neither does it terminate in mortification. There is effusion sometimes in the joints, a considerable secretion of synovia or of fluid in the bursæ, and sometimes in the tendons; but the parts may become rigid; you may have this effect of inflammation, and then sometimes mortification has been the consequence.

Rheumatism will occur in infants as well as old people. I have seen many cases of the disease in the youngest children—a circumstance very likely to be passed over; and I have seen disease of the heart in the youngest children, as a consequence of pericarditis, excited by this disease.

The *treatment* of this affection, whether acute or chronic, would be exactly the same. You have only to make two distinctions to ascertain whether it is the inflammatory form of the disease—whether the parts are hotter than they should be—whether heat does harm, or whether the parts are cooler than they should be, and heat does good. In the one case antiphlogistic measures will be required, and in the other stimulants. Sometimes where the patient is plethoric, it is advisable to take away blood from the arm, and you will find it buffed and cupped, but there is no danger whatever from that circum-

stance, for if you go on bleeding, you may find the blood buffed and cupped, till you have got nearly all the blood out of the body. But venesection is not always required; free local bleeding generally answers better; but there is no objection to general bleeding if the strength will allow it, and if several large joints be affected, it will then be better than local bleeding. Whether you apply leeches, or cupping, or not, to the parts themselves, it will be very useful to apply cold water or lotions, as long as the temperature is higher than it ought to be, and it feels comfortable to the patient. There is no danger in applying cold under these limitations. If the patient should be timid, and yet long for cold evaporating lotions, as in the case of gout, they may be applied tepid; but I never saw injury arise from applying cold in rheumatism, where the parts were hotter than they should be, and the patient felt hot.

The two best internal medicines are, without doubt, colchicum and mercury. Colchicum here, as in the case of the gout, generally does no good till it purges, and when it once purges the patient thoroughly, the disease usually gives way. It should be given the same way as in gout—that is to say, with magnesia, that it may produce its effect as speedily as possible. As soon as it purges, it is right to desist; and also as soon as its effect ceases. If you give a dose of hydrocyanic acid with the colchicum, it sits better on the stomach, you may exhibit one, two, or three minims. But you will, every now and then, find obstinate cases which will not easily give way, although the greater part of them do, and then it is a pity to go on with the colchicum; you had better exhibit mercury and get the mouth tender. If you do this in the first instance, instead of giving colchicum, the success is about the same. Colchicum may gripe, and mercury may make the mouth sore,^f so that you may not be able to continue them, and you may then leave off the one, whichever it may be, and exhibit the other; or if you begin with one of them first, and find it does no good, then you may exhibit the other.

As soon as the inflammatory symptoms are gone down, and the patient has been properly evacuated, many give bark and quinine, and it is said that bark is a good and safe remedy in active inflammatory rheumatism; but HAYGARTH does not give any authority for such practice. He gives accounts of the successful treatment of rheumatism by bark; but then it was not till he had evacuated the patient upwards and downwards, and employed the antiphlogistic plan. After that, it is said that it prevented the disease from recurring. I have not had occasion to use bark, for I have found the disease give way under the treatment I have mentioned. It may be right to give narcotics, in order to produce ease, and a full dose of opium may be proper at night. There is no harm in it provided you adopt antiphlogistic measures, and provided you bleed as far as bleeding is indicated, and purge well and apply cold. Exactly the same treatment is proper in the chronic form of the disease, if there be inflammatory symptoms; but whether the disease be recent or chronic, if the parts are not in this condition, an opposite plan should

be adopted, and it is right to stimulate the parts. In this case, friction is an excellent remedy; and the hot bath, particularly the vapour bath, is very useful. If the patient find alleviation from warmth and stimulants of all kinds, or the parts are colder than natural, then this plan ought to be put into practice. Use the hot bath every day, and when the cold and pain are very great, even twice a day. It is here that electricity and friction, together with stimulating washes, liniments, &c. are of use. Croton oil too is a good stimulant when used externally, and does not then purge. Tartar emetic, and the moxa have sometimes been employed, but only in severe cases. Acupuncture is of great use. Introduce the needle into the fleshy parts, but never into tendons and joints, though I have seen such things done. The biceps, deltoid, gastrocnemius, the rectus, or gluteus muscles, are the proper seats for acupuncture. The best mode is to roll them in pressing them between your fingers, and they will soon pass to the desired length. You may insert them an inch and a half in depth, and if the bone is in the way, there is no harm in the needle coming upon it, though there is no use in it; but they may go as far. The success of the operation does not depend on the number of needles, but on the time they remain in. If it be comfortable to the patient, you may let them remain in a couple of hours; that is as long as the patient can bear to be kept still. There is no pain worth notice when they are introduced, and none at all when they are in. It should be done every day, and occasionally you will find relief as soon as they are taken out the first time, but in other instances, not till they have been employed two or three times, or perhaps more than that. It is only where the parts are not hotter than they should be, that acupuncture is of any use: I never saw it do good when heat increased the pain. Acupuncture is not an absurd remedy, it is a strong one; but I am quite satisfied it is a real remedy if it be properly applied.

In chronic rheumatism, mercury is as useful as in the acute form. Whether the parts are hotter than they should be or not, obstinate cases will give way to mercury, when they will not yield to anything else. Nothing is more common than for persons who have chronic rheumatism, whether it be inflammatory or not, but who are suffering great pain, and more especially if the pain be worse at night, to receive no benefit whatever till they have had a course of mercury, and as soon as the mouth is sore, they will lose all the pain. Mercury appears equally useful in both kinds of rheumatism. You will find that one of the best internal stimulants in this sort of case is, the ammoniated tincture of guaiacum. Guaiacum is a stimulating diaphoretic, and is very useful in this form of rheumatism, though it is of no service in the active form of the complaint. If you give the tincture from the spirits and ammonia, you produce great warmth, and the patient remains warm for a longer or shorter time. You may give this in various doses; some persons are made hot with thirty drops, but others will take a drachm; and I have seen some who have taken six drachms, three or four times a day. There is no

rule for it ; but you should begin with half a drachm, and as long as the patient is not warmed by it, and does not find it irritate him, you may increase it. You will sometimes find the warmth last one, two, or three hours ; and from a proper course you will find great alleviation from it. Sometimes it purges—sometimes it irritates the skin and produces the nettle rash ; but when internal stimulants are necessary in rheumatism, I think this is one of the best. In the chronic form of this complaint, it is often necessary to support the patient well—to give him wine and nourish him exceedingly. Arsenic has an excellent effect in chronic rheumatism, where the joints become cold. It frequently requires to be well persevered in, and you will find it borne by the stomach, just like colchicum ; infinitely better if you give prussic acid a little before it, or at the same time. Arsenic is much disposed to irritate the stomach and intestines, to produce gastritis, and short of that, it frequently produces nausea and vomiting ; but that may generally be prevented by prussic acid. The moment you find heat in the stomach and bowels, and pain on pressure, it should be omitted. You should ascertain this point every day, and when it occurs, the medicine should not be resumed till the symptoms have gone off. Arsenic also produces soreness of the eyes, and redness of the throat, and when any of these symptoms arise, you must desist from exhibiting the medicine, and not resume it till they are gone off. There is no particular rule for the dose, but it is best to begin with two or three minims, and as long as it is borne without doing the patient any harm, you may increase it. I have known cases where thirteen or fourteen minims were borne, but that is a large dose ; generally seven or eight minims are as much as can be given. I do not know that there is any danger in the œdema, induced by the medicine ; but it shows that it acts on the body, and therefore it is better to desist. With regard to the gastritic affection, that would be dangerous if the arsenic were continued ; but with a careful practitioner, no danger can arise from this remedy. In the chronic form of the disease, blisters, setons, and moxæ may be of use, just as in any other chronic inflammation.

If the disease assume an intermittent form, you must treat it in some measure as intermittent fever ; give a large dose of quinine or bark, either just before a paroxysm is expected, or afterwards, and smaller doses in the intervals, or you may employ arsenic. A large dose of a narcotic, given just when the paroxysm is about to begin, often acts like a charm, when rheumatism affects the face. It is an excellent plan to give stramonium at the time the pain is coming on, and repeat it in two or three hours. A large dose is generally required, and therefore it is better to give a grain to an adult, and in two or three hours, if there be no alleviation of the pain, and no affection of the head, then repeat it. Sometimes the pain will not cease till you have exhibited two or three doses ; but I do not know above one or two cases in which this plan has failed ; it is certainly one of the best you can adopt. The ill effects of stramonium are, dimness of sight, great thirst and dryness of the throat ; but these.

are not at all dangerous symptoms; the most unpleasant symptom is, an affection of the head, drowsiness, giddiness, or delirium. I have frequently seen these induced, and then go away after a few hours; but if there be any hazard, an emetic may be had recourse to; if, however, you increase the dose slowly, this effect need hardly ever occur.

CONCLUDING ADDRESS.

I have endeavoured to speak of all those diseases which usually come under the care of the medical practitioner. I have not digressed in order to speak of other diseases, and to mention a number of other subjects, because I knew I had so much on hand, that the time would scarcely be sufficient to do justice to those which came particularly in my own province. It may be that there are some other diseases which I ought to have spoken of; but I do not think that there are any that are not fully treated of in other courses; I allude to surgical diseases, and diseases of the female organs of generation; a few of which, although they may come under the treatment of the physician, yet they must be particularly spoken of by the professors of surgery and midwifery. I have taken advantage of that circumstance to pass over some affections which I am in the habit of treating in private practice every day. I hope I have not wasted any time in displaying my knowledge on topics foreign to this course of lectures, because I had too many of my own to be desirous of saying anything more than was strictly necessary in my particular department. You are aware that all the instructions given can be of no avail, unless you see the facts which are stated verified. I have advanced nothing marvellous in order to produce an effect; but I have been anxious simply to inculcate real truth, so far as I am aware that it is truth.

There are two things which I am particularly anxious to impress upon you, and these are—that *in your profession you will never lose sight of its real delight*—that you will never become *mere* practitioners, going about to see your patients and ordering medicines, just as a baker goes distributing loaves round a parish; but that you will consider it a source of true intellectual delight. There is hardly a case that occurs that may not afford you an intellectual exercise, and enable you to advance your own knowledge a little. Very few practitioners, I am sure, pass six months in the year without having an opportunity of advancing not only their own knowledge, but adding to the general stock. I trust you will always consider, that although you enter the profession for the purpose of gaining a livelihood, yet happily in our pursuits there is an infinitely greater delight than this—that we have the means of leading the lives of philosophers—of using our intellect and improving science.

The other point to which I wish to direct your attention is, *to avoid everything that can bring the profession into disgrace*. We all witness *medical squabbles*, and I think nothing can be more contemptible than personal *jealousies*, carried on so unfortunately as we often see them. When you are in practice, never give an opinion upon

any case, unless it is in your own hands. If you see a man treating a patient in a disgraceful manner, then it is much better to see the individual than to make any disturbance about it. When you are attending with another practitioner, nothing should be done to lower him in the opinion of the patient. It is right if you can, always to express your coincidence of sentiment with a brother practitioner; and if you differ from him, you should not let the patient know it, but argue the point in private. Never say anything to make a patient think you would. If it so happen that a medical man should ill-treat you (*and we must all expect to meet with that*), it is best to keep the matter quiet, *because if you complain of being wronged, the world will only shake their heads, and significantly say "two of a trade—two of a trade,"* and you will gain nothing by it. *When your conscience satisfies you that you are the injured person, it is best to learn to pass things over, and avoid as much as possible any appearance of a medical squabble to the world.*

I feel the greatest obligation to you for the kindness with which you have listened to me. In fine, I can only say, that on *any occasion on which I can be of service to you, it will afford me the greatest pleasure.*

We have now arrived at what I intend to be the conclusion of the course. I have spoken of an immense number of diseases to which flesh is heir, and I have endeavoured to tell you all I myself know about them.

FINIS.









